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The Chadwick Lectures
ON
TYPHUS FEVER IN SERBIA.

Delivered at the Royal Society of Medicine on Oct. 20th and 29th and Nov. 3rd, 1915,

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LECTURE II.[1]

THE RELATION OF TYPHUS TO PLAGUE.

MR. PRESIDENT AND GENTLEMEN,—It is a customary jest among the laity to say that doctors are always inventing new diseases, and certainly when we consider the ever-flowing stream of jaw-cracking medical terms, together with the increasing output of medical literature, there does seem to be some justification for the complaint. Yet in most cases what appears to be the classification of a new disease is really only the differentiation of that disease from a pre-existing family of diseases. "Omnis determinatio est negatio," said Spinoza—that is, whenever we define a disease we strip away from it the attributes which it does not possess. We are continually dividing up and classifying diseases afresh and giving to them new names as a convenient sort of shorthand. Just as there was a time when people spoke of one kind of rose and the term rose covered a great variety of what we now know to be different species, so there was a time when the term "fever" denoted a great variety of fevers, having doubtless the common characteristics of a quickened pulse, raised temperature, and an increased frequency of respiration, yet each one being an entirely separate entity. To a layman it must seem strange that such diseases as measles and small-pox should ever have been confounded, yet such common diseases were not definitely distinguished until 900 A.D. by the Arabian physician Rhazes in a treatise which has been translated into Syriac, Greek, and Latin. Small-pox used to be regarded as a more severe kind of measles; the technical term "morbilli" comes from the Italian, and means "little disease," as compared with the great disease of small-pox or variola. Like many other things in life, when once we have found the key to the problem we wonder how the mistake could ever have arisen, or how two such dissimilar diseases could ever have been confused. But, as Pascal says, the more intelligence we have the greater is the difference which we perceive in things. In all this question of classification we must beware of deceiving ourselves with words or in applying a name where there is no intellectual concept; in fact, it is this very thing which Mephistopheles in Goethe's *Faust* recommends the medical student to do. With the possible exception of politics, there is nothing in which it is so important as in medicine to realise that words are the counters of wise men and the coin of fools.

Now, typhus was not definitely separated off from other diseases till the middle of the eighteenth century; formerly it had occurred under the general name of fever, and was certainly confounded with plague, to which it has a superficial, but only a superficial, resemblance, the two diseases being in their essence entirely different. Now that we know plague to be due to the bacillus pestis, thanks to the researches of Kitasato in 1894, it is obvious that it has nothing to do with typhus, and yet it would seem to flourish in the same kind of soil; more particularly, dirt, poverty, and overcrowding are favourable to its production, just as they are to that of typhus, but there is not the same connexion between plague and war as there is between typhus and war. The characteristic symptom of plague is the swelling of the lymphatic glands, the glands most usually affected being the inguinal, hence the name "bubonic plague."

The "Plague" of Thucydides.

Going back to quite early times, there is a general consensus of learned opinion that the disease which ravaged Athens in the second year of the Peloponnesian War (430 B.C.), and was described by Thucydides as the plague, was in reality identical with typhus.[2] It is worth while considering in some detail this description by the Greek historian, as it is perhaps the earliest description extant by a layman of a really important disease. We are told by Thucydides that this "plague" first attacked the inhabitants of the Piræus, then reached the upper city, where the mortality became far greater. The crowding of the people out of the country into the city aggravated the general misery, and the newly arrived suffered most, for, having no houses of their own, but inhabiting in the height of summer stifling huts, the mortality among them was dreadful, and they perished in wild disorder. The dead lay as they had died one upon another, while others, hardly alive, wallowed in the streets and crawled about every fountain craving for water. The rapidity of the onset, which Thucydides describes, is very characteristic of typhus, and so, too, are the violent heats in the head, together with redness and inflammation of the eyes. "The sufferers could not bear to have on them the finest linen garment; they insisted on being naked, and there was nothing they longed for more eagerly than to throw themselves into cold water. Many of those who had no one to look after them actually plunged into the cisterns, for they were tormented by unceasing thirst, which was not in the least assuaged whether they drank little or much. They died either on the seventh or ninth day, not of weakness, for their strength was not exhausted, but of internal fever, which was the end of most." This high fever is much more like typhus than plague, for the latter kills its victims earlier than the seventh or eighth day. We are told further by Thucydides that physicians were among the first to be attacked because they oftenest came into contact with the disease. "Some of the sufferers died from want of care, others equally who were receiving the greatest attention. No constitution was strong enough to resist or weak enough to escape the attacks. Most appalling was the despondency which fell upon anyone who felt himself sickening, for he instantly abandoned his mind to despair and, instead of holding out, absolutely threw away his chance of life. The violence of the calamity was such that men, not knowing where to turn, grew reckless of all law, human and divine. The customs which had hitherto been observed at funerals were universally violated, and they buried their dead each one as best he could. Many having no such appliances because the deaths in their household had been so frequent made no scruple of using the burial-place of others. When one man had raised a funeral pile, others would come and, throwing on their dead, first set fire to it, or, when some other corpse was already burning, before they could be stopped would throw their own dead upon it and depart." Thucydides goes on to speak of serious moral changes. Thus "men reflected that life and riches were alike transitory, and they resolved to enjoy themselves while they could and think only of pleasure. Who would be willing to sacrifice himself to the law of honour, when he knew not whether he would ever live to be held in honour? Those who saw all perishing thought that the worship or neglect of the gods made no difference. For offences against human law no punishment was to be feared, no one would live long enough to be called to account. Already a far heavier sentence had been passed and was hanging over a man's head; before that fell, why should he not take a little pleasure?" Plague appears to have been of great antiquity in Egypt, and Cicero tells us that the ibis was considered sacred by the Egyptians because it kept away the plague (*avertant pestem ab Ægypto*).

The Pestilence in the Reign of Marcus Aurelius.

The next historic instance of what was called "plague" in those days took place in the reign of Marcus Aurelius (165 A.D.). It has been described by Galen, and from the close resemblance of his description to the plague at Athens there is little doubt that it also was really typhus. It synchronised with serious earthquakes, tremendous floods, swarms of locusts, and famine. It appears that Syria was the starting-point of the pestilence. In order to suppress a rising of the Syrians an army under Avidius Cassius, later followed by Lucius Verus, whom Marcus Aurelius had associated with himself in the empire, was led into Syria. Prior

[1] Lecture I. was published in THE LANCET of May 27th, p. 1069.

[2] A careful consideration of this subject may be found in a paper read by Dr. R. Crawfurd before the International Congress of Medicine held in London in 1913.

to the conquest of Seleucia the troops had suffered from want and sickness. After the surrender of the town, where 40,000 men had been crowded together, the pestilence broke out among the Romans. According to the story, the Roman soldiers hunting for treasure in the temple of Apollo entered into a small store-room, out of which, through the magic arts of the Chaldæans, the germ of the disease issued forth. This story was carefully spread about by the Chaldæan priests so as to let the sickness appear to be a punishment for the pollution of the sanctuary; at the same time it bears witness to the fact that the contagious character of the pestilence was already recognised. The army of Lucius Verus, with its long train of camp-followers, feasted themselves in Antioch, Laodicea, and the other towns through which they passed, thus spreading the disease far and wide through the provinces of the Roman Empire. On reaching Rome the ravages of the disease were so violent that Marcus Aurelius instituted a general "Lustration," introduced new gods, and ordained a seven-days Lectisternium. Nevertheless the pestilence continued in its virulence, corpses were brought out of the city in cartloads, and the dead from the poorer classes had to be buried at the public cost. Orosius tells us that Rome and the neighbouring provinces became so desolated that here and there whole villages and towns, abandoned by their inhabitants, fell into ruins. Outside the Roman Empire the Germans were affected by the disease, and also Gaul and Scotland. According to Galen, the epidemic lasted 15 years (165–180), at the end of which time the Emperor Marcus Aurelius himself died of the disease. During this long period there is no doubt that some of the cases described by Galen were really cases of small-pox; thus he speaks of the rash coming sometimes in the form of pustules.

Another serious pestilence which seems to have included cases of true plague and typhus, perhaps also diphtheria and ergot gangrene, broke out in 250 A.D. and lasted till 256. During this period there were numerous alarming natural phenomena. Thus, in 251 there was an earthquake in Cornwall; in 253 an eruption of Etna, besides numerous earthquakes in Asia, Africa, and Rome; while many coast towns were overwhelmed by floods. We are told that the disease was spread by clothes, which is more suggestive of typhus than plague, and also by the look, which must have meant the evil eye. An ecclesiastical writer tells us that the pestilence first broke out in Neo-Cesarea, in Pontus, in an overfilled theatre in which games were being celebrated in honour of Jupiter, after the people in an irreverent mood had called on the god to make room for them.

The Justinian Plague: Other Epidemics.

The well-known pestilence in the time of Justinian which continued off and on for a period of 50 years, known as "the Justinian plague" (530–580), doubtless really was true bubonic plague, although some descriptions of it, in particular that by Evagrius, are so like the plague of Thucydides that typhus must certainly have occurred concurrently with it. This great epidemic of the sixth century began in the Delta land of Pelusium, near to Damietta, between the Serbonian Bog and the eastern branch of the Nile, according to Procopius, who is said to have observed its progress and symptoms with the eyes of a physician; it then passed eastwards to Palestine and Syria and westwards to Alexandria. Some towns were attacked so violently that they almost ceased to exist; thus there was great destruction at Antioch in 526, where the pestilence broke out amid earthquakes and fires; 250,000 met their death here. According to Procopius, during the whole of this year the sun looked as though it were in a condition of continual eclipse. He also tells us that the pestilence had such an evil effect upon the morals of the people that there was such general unbridled licence that it seemed as though the disease had only spared the worst of the population.

Both Procopius and Evagrius maintain that immediate contact with those affected did not give rise to the disease, that doctors and attendants on the rich were not more but less attacked, while many who absconded succumbed to it. Modern experience has confirmed these observations, for very few attendants in hospital have contracted plague. At Constantinople it is said that many were attacked by the pestilence after apparitions in dreams or while waking had warned them of their threatening danger.

No facts have been preserved which enable us to estimate the mortality of this plague which lasted for 50 years, but Gibbon as a result of his researches says: "I only find that during three months five, and at length ten thousand persons died each day at Constantinople; that many cities of the East were left vacant; and that in several districts of Italy the harvest and the vintage withered on the ground. The triple scourge of war, pestilence, and famine afflicted the subjects of Justinian, and his reign is disgraced by a visible decrease of the human species, which has never been repaired in some of the fairest countries of the globe."[3]

There is little doubt that the Black Death which ravaged Europe in the middle of the fourteenth century is the same as that which we now know as true bubonic plague; in that overwhelming calamity some 25,000,000, or a quarter of the population of Europe, died from the disease. After that it became established as an endemic disease in England and other parts of Europe, the last appearance in England being in 1665, when 70,000 persons perished.

The pestilence which originated in Cyprus 1505–28 and ravaged almost the whole of Italy was undoubtedly typhus fever; this is probably also true of the disease called "morbus Hungaricus," which raged in the army of Charles V. during the siege of Metz in 1552. At this time the Italian physician Frascatorius gave a description of it, distinguishing it from plague; he called it "morbus lenticularis."

Mode of Spread and Symptoms.

Before an outbreak of plague rats often die in large numbers, and this is regarded by people in China and India as a sign of a coming epidemic. Curiously enough in the Old Testament, in the first book of Samuel, a fatal disease among field mice is recorded which affected the Philistines,[4] and was probably plague. There is little doubt that the virus exists underground before it affects human beings. Contrary to the conditions of typhus, epidemics of plague have often been preceded by a long drought, but, like typhus, all the localities in which plague flourishes are conspicuously filthy; a soil contaminated with decaying animal matter of all kinds would seem to be an essential condition for the vitality of the virus. Like typhus, there is not much communication of the disease through the air.

Owing to the frequent concurrence of plague and typhus such acute observers as Diemerbroech and Sydenham were induced to believe that the one disease might be transformed into the other; the error is not an unreasonable one when we consider that much the same kind of soil is favourable to each disease; thus plague, like typhus, has often followed on famines, wars, and other calamities which produce destitution and a lowered state of health, though, unlike typhus, epidemics of plague have often been preceded by a long drought. Such views, of course, were held long before we knew anything about micro-organisms. Clinically speaking, the raging delirium and the frequent occurrence of gangrene of the extremities, while common in typhus, are rare in plague; the hoarseness and laryngeal catarrh which are frequent in typhus are not a feature of plague. Then, too, we have the rash of typhus and the inguinal swellings in plague to guide us to a correct diagnosis.

There is plenty of evidence in the case of plague that the lower animals may be affected with it, particularly mice, rats, and dogs; house flies and fleas also may convey the disease; whereas there is very little evidence that the lower animals are affected by typhus. In the case of both diseases a second attack and relapses are most rare.

Communication of plague from one person to another in the open air or by casual meeting is very rare, if it ever occurs, and it is certainly not so contagious as small-pox or scarlet fever. Nor does it appear to be conveyed by water. The long life of the organism and the probable infection through the skin make the hygienic condition of the individual, the home, and the community matters of the highest importance. The poorer classes are always the chief, if not the only, sufferers. It was observed in Malta in 1913 that the plague was far less common in the upper storeys of the lofty houses of Valetta than in the basements.

RELATION OF TYPHUS TO RELAPSING FEVER.

Another disease long banished from Western Europe, but which still occurs with fair frequency in Serbia and the Balkan Peninsula, is relapsing fever. Though essentially it is quite unlike typhus fever, yet at any particular stage it may bear a remarkable resemblance to that disease, more

[3] Gibbon, vol. v., p. 346.
[4] I. Samuel, v. and vi.

particularly from the point of view of complications; thus pneumonia and respiratory affections generally together with transient forms of peripheral neuritis are common in both diseases. Practically, however, the great point of distinction lies in the fact that relapsing fever, or "febris recurrens," as it is called on the continent, is a much less serious disease than typhus fever; whereas the mortality of the former is rarely more than 2 per cent., that of the latter may rise to from 30 to 40 per cent. Unless considerable care is taken confusion easily arises in the statistics of these two diseases, so that one may readily get a false conception of what is happening. In the past it has prevailed extensively in Europe, especially in Ireland. It is common in India, where the conditions for its development seem always to be present. In 1869 there was quite an epidemic of it in New York and Philadelphia, thought to have been introduced by Irish immigrants, but only an occasional case has been met with in Great Britain during the past 20 years. Being a far less fatal disease than typhus and of shorter duration, it was at first regarded as a milder form of typhus.

Oddly enough, Hippocrates gives an account of a disease which he had himself observed in the island of Thasos, and which bears a close resemblance to relapsing fever as we know it to-day. But from the time of Hippocrates it appears to have been lost sight of; at least, no mention of any disease at all resembling relapsing fever occurs in medical literature until 1770, when Rutty wrote describing "the weather, seasons, and diseases in Dublin." But for a long time after this it was mixed up with other fevers, and more particularly with typhus, from which it was not finally differentiated till 1826. In that year there was an epidemic of relapsing fever in Ireland, which first appeared among the working classes, who suffered great distress from the stoppage of the factories caused by the war between Turkey and Russia and also from failure of the potato crop.

Now, as we have said before, it seems strange when once we know the distinction between the two diseases to realise how they could ever have been confused. In the one case we have a disease—typhus—characterised by a severe fever lasting about 14 days and with a high mortality; in the other case we have a fever lasting on an average seven days, with one or more relapses or recurrences, which is almost unknown in any other fever, and also a very low mortality; finally, in typhus there is a very characteristic rash, while in relapsing fever there is no rash or only one quite exceptionally. Of course, when confronted with a case, as one frequently was in Serbia, with an entire uncertainty as to the history of the patient, endeavouring to interpret the poor man's complaint out of Serbian, Czech, or Hungarian into German, which was our usual linguistic medium of exchange, the distinction between typhus and relapsing fever is by no means simple. Of this I had some very practical experience on one occasion when I was asked to go to the station at Skoplje to meet a train coming from Nish with 150 sick and there to sort out those suffering from typhus from those with relapsing fever, so that they might be sent to different hospitals. In both diseases alike there would be high fever and rapid pulse, together with flushed face and injected conjunctivæ, also some enlargement of the spleen, which, however, is more noticeable in relapsing fever than in typhus. Speaking generally, from my experience I should say that there is more actual suffering in relapsing fever than in typhus, though the former is a much less serious disease; possibly the greater delirium and general obfuscation of the cerebral faculties may render the typhus patient more oblivious of his sufferings. Striking and troublesome, for instance, as was the feature of "tender feet" in typhus it was more intense and widespread in the cases of relapsing fever. Then, too, there is that curious contrast with regard to pregnant women, whereby gestation is almost invariably brought to an end in the case of relapsing fever, whereas in typhus the gestation is unaffected. Convalescence from relapsing fever is apt to be slow as compared with that from typhus, and it confers but little immunity.

Causation of Relapsing Fever.

Relapsing fever has this particular interest for science in that it was the first specific disease in which the micro-organism known as the spirillum of Obermeier was discovered in 1873. In all probability this spirillum or its spores are given off with the breath or from the skin and are received into the air vesicles of the lungs with the inhaled air; they are not conveyed in drinking-water. It is exceedingly apt to pass from hospital patients to nurses and doctors. It may be transported to a distance by infected clothes, and in Edinburgh in 1843 it was noticed that a large number of laundry-women contracted relapsing fever, though they had no other communication with the sick than washing their clothes and bedding. In many cases it would seem that the contagion is communicated from one individual to another by means of blood-sucking insects, such as ticks, &c.; there are also instances of the disease having been contracted by the handling of the bodies of those who had died from it.

When we come to consider the remoter causes of relapsing fever, or rather the soil which favours its development, we are struck by the large consensus of opinion which regards it as due to poverty, overcrowding, and insanitary conditions. Murchison, who made a prolonged and very detailed study of continued fevers, was of opinion that the teaching of history showed typhus fever to be the pestilence of war, of camps, and of sieges, while relapsing fever is the pestilence of famine. Thus, while relapsing fever is associated specially with destitution,[a] typhus is associated with destitution and overcrowding combined.

The epidemics of relapsing fever of 1817–19 raged during a period notorious in British history for low wages and high prices of food due to the fall of the markets which had been inflated during the continued war; while the epidemics of 1843–44 and 1847–48 occurred about the time of the great Irish famine, and during the general destitution which played so large a part in causing the abolition of the Corn Laws and in preventing their re-enactment.

The German name "Hungerpest" for relapsing fever points unmistakably to the connexion in German opinion between relapsing fever and the existence of destitution. When an epidemic of it occurred in Silesia in 1847 the inhabitants, in consequence of a succession of bad harvests, had been reduced to subsisting upon cloves, grass, mushrooms, and the roots of trees.

In 1870, which is the last time there has been any serious outbreak of relapsing fever in Great Britain, there was an epidemic in Liverpool, and THE LANCET Report on the subject showed that there were three principal causes: (1) The sites of the houses, which were frequently placed on decaying animal and vegetable matter; (2) insufficient drainage; and (3) the extensive prevalence of cellar dwellings in darkened and filthy courts.

Professor Clifford Allbutt in the epidemic of relapsing fever in England in 1870 saw a good many patients who, after contracting relapsing fever and recovering from it in the course of a few weeks, took typhus; he did not see any who had typhus first and then relapsing fever. In the cases in which typhus followed upon relapsing fever in the same patient within a short interval of time it seemed to him that the typhus pursued a milder course than might have been expected had the patient suffered primarily from typhus. He suggests that if ever the micro-organism of typhus is discovered it will be interesting to know whether in genus or in species it is related to relapsing fever, so that the occurrence of one disease may modify the course of the other, as is the case with vaccination and small-pox.

THE RELATION OF TYPHUS TO ENTERIC FEVER.

The last important disease, from which typhus had to be disentangled, so to speak, was enteric fever, which is perhaps better known under the name of typhoid fever. The official name is more satisfactory than typhoid fever, because the latter seems to imply a resemblance to typhus which does not really exist. True it is that they were not clearly distinguished till towards the middle of the last century, and that they have clinically some superficial resemblances, yet they are essentially entirely different diseases. In passing, I might point out for the benefit of the non-medical part of my audience that enteric fever has nothing to do with enteritis, the latter being a somewhat general term for inflammation of the intestinal canal with no reference to any specific disease; thus people may hear of their friends in Flanders or Gallipoli suffering from enteritis, and may be morbidly apprehensive that it is something closely allied to

[a] "Relief of extreme destitution in districts where relapsing fever was prevailing has repeatedly been followed by subsidence of the epidemic, starvation renders persons more susceptible to the contagion, either by weakening the power of the living cells of the body to cope with the invading microbes or by favouring the development of the latter more directly."—Principles and Practice of Medicine, Fagge and Pye-Smith, third edition, vol. i., p. 132.

enteric fever. Now, the great difference between typhus and enteric fever lies in the fact that, while in the former the disease spreads all over the body, affecting all tissues indifferently, in the case of enteric fever the disease, though also a general disease, has a special localisation—namely, in the glands of the lower part of the ileum and the large intestine. The distinction between these two diseases was a great triumph of morbid anatomy, which in the present day is rather out of fashion. It was, in fact, hardly possible to make this distinction until the holding of post-mortem examinations and the consequent increased study of morbid anatomy became part of the usual routine of hospital work.

The first recognition of enteric fever in England, though, of course, it was not called by that name, was a description given us by Willis of an epidemic which occurred in the Civil War of 1643. Willis appears to have recognised the intestinal lesion as something distinct from either plague or typhus. Baglivi, in Italy, wrote of it under the name of "febris mesenterica," while in Germany Hoffmann, during an epidemic in Halle in 1699, and again in 1728, noted some of the clinical features which separated it from typhus, and described the ulceration of the intestine in fatal cases.

In 1737 Huxham, of Plymouth, drew a sharp distinction between the slow nervous fever, which was obviously enteric fever, and the more acute, malignant fever, which was typhus. Later in the eighteenth century there seems to have been a general recognition of an intestinal fever, which was probably regarded as one variety of the "continued fevers," and though the two types of slow nervous and acute malignant fever were vaguely perceived, no really scientific distinction was made between them.

Final Recognition and Advance in Knowledge of Typhoid.

What seems finally to have led to definite recognition and isolation of the two diseases was the fact that English and American doctors in the first half of the last century studying in Paris, where enteric fever was specially present, on returning to their homes found themselves mainly confronted with typhus, and thus they readily recognised that it was not the same disease as that with which they had become familiar while studying in Paris. The French physicians of that time seeing only the one disease, thought that the intestinal ulcers would be found in all cases of the disease known as jail fever or typhus. But Gerhard, of Philadelphia, who had studied in Paris and there had become familiar with enteric fever, on his return to Philadelphia, when there was an outbreak of typhus (1837), set out clearly the distinction between the diseases and also differentiated them from malarial fever. Thus the distinction seems to have been made earlier in the United States than in any other country.

In England the two fevers were about equally prevalent, and the intestinal lesions were regarded as merely accidental occurrences in certain of the cases; the question was not finally set at rest in England until the work of Jenner (1849–51) proved by a close observation of the two diseases at the London Hospital, with post-mortem examination, their essential difference. But the old views were abandoned slowly and the innate conservatism of the Irish led Irish physicians to maintain the identity of the two fevers even as late as 1861. In Germany Schönlein (1839) proposed the names of "typhus abdominalis" for what we call enteric fever and "typhus exanthematicus" for what we know as typhus; these names are still used by German-speaking people, and these are the names which I was accustomed to write on the bed-letters of the Serbian patients.

We have now much greater knowledge of enteric fever than of typhus. Thus, as far back as 1880 the bacillus of enteric fever was discovered by Eberth as the specific cause of the disease, while that of typhus is still to seek. This bacillus has about the same limits of latitude and longitude as man himself, so that no country or race is known to be immune from the disease. It is indeed dependent on man for its existence, though it may live for a time in water or on various articles, yet its life in such situations is comparatively short; it may be blown about with dust or carried by flies. Even 20 years prior to the discovery of Eberth an English doctor in the provinces—W. Budd, of Bristol—had surmised that the infective agent in enteric fever was to be found in the patient's dejecta; hence, if these could be adequately sterilised the disease might disappear altogether, and, indeed, the rapid diminution of this disease in Western Europe, especially in those countries and towns where sanitary science is most advanced, shows that we need not despair of its total disappearance. Owing to a method introduced by the French physician Widal, we know how to diagnose enteric fever with very great certainty, while the wonderful immunity which our troops have enjoyed from it is largely due to the prophylactic knowledge gained for us by Sir Almroth Wright. Apart from this method of inoculation, the most important means for preventing the occurrance of enteric fever in communities are the securing of a pure water-supply and the effective disposal of excreta. How useful such hygienic measures may be is demonstrated by the fact that in the United States enteric fever is more prevalent in rural communities than in cities, where the sanitary arrangements are so much more efficient. Without wishing to complicate this question unduly, I ought, before leaving this subject, to say that we seem in process of splitting up enteric fever still further, and that there are micro-organisms called paratyphoid A and B which give rise to enteric fever, but with this difference, that the whole disease is of a milder type, its total duration being shorter and the fever showing more marked remissions.

SUMMARY.

We have thus passed in review three important diseases, with which in the past typhus has been frequently associated, and with which it has been often confused. Curiously enough, we have a much greater scientific knowledge of the plague, relapsing fever, and enteric fever than we have of typhus. In each of the three first-named diseases the micro-organism has been discovered, while that of typhus remains still unknown. In spite of this ignorance, we have been as successful in banishing typhus from its favourite habitats as we have been in the case of many other diseases, if not more successful. Practically speaking, it comes to this, that in countries where typhus used to be endemic, in proportion as the knowledge and practice of hygiene and sanitary science have advanced so has typhus receded; consequently, in Great Britain, where sanitary science has been most highly developed, it may be said that typhus has practically ceased to exist. Even then, if we do not discover the specific organism of typhus, but remain in the same position with regard to it as we are in face of measles, scarlet fever, and small-pox, we may yet be able, in other countries where it is still endemic, by improved methods of hygiene, to banish typhus or render it a *quantité négligeable*. And this service in particular we can render to our Allies in the Balkan peninsula by showing them, as indeed we have been doing during the past year, how to avoid the mistakes which we ourselves have made in the past, and how much disease may be got rid of by simple methods, before they have acquired the accumulated capital which renders it possible to build great laboratories for the research into the origin of disease. Just as after the war by exporting capital to Russia we may help much in the development of her industries, so now by exporting, so to speak, our sanitary experience we may be of the greatest assistance to the Balkan peoples.

In speaking of these diseases we have shown how they have all been subject to the process of differentiation—i.e., from what was once regarded as merely "fever" we have differentiated out a number of diseases. Nor has the process come to an end; as we said just now, enteric fever shows signs of being further split up by our expert bacteriologist. This is all part of the evolutionary progress of homogeneity to heterogeneity, as Herbert Spencer defined it. Now the question arises with regard to disease, "Is this process of differentiation to go on for ever, so that we become lost upon a limitless sea of particulars—is there to be no end to analysis?" When we have isolated all the specific organisms of all acute diseases, may there not be an underlying unity and their unifying substratum be found in the soil, so that the ancients in speaking in a general way of "fever," without distinguishing between different kinds of fever, may not turn out to be so far off the ultimate truth. Typhus, doubtless, is a striking instance of how attention to the soil may bring about the practical disappearance of a disease, and this might be extended to other diseases. Continued analysis can hardly be the conclusion of the whole matter; we want a synthesis too, which may enable us intellectually to comprehend the root-essentials of disease.

A CASE OF ACUTE DIABETES.

WITH COMMENTS, ESPECIALLY IN REGARD TO ACIDOSIS.

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THE following are the main facts of the case upon which I propose to comment.

Notes of the Case by Mr. C. H. COMERFORD.—The patient, a boy aged 7 years, was admitted on Jan. 4th, 1916, and remained in hospital only one week, when his parents took him home fearing he was about to die. He was a gentle, quiet child, very thin, and wore a wan and apathetic expression, although his complexion was good and his eyes fairly bright. His parents stated that he was naturally healthy, and had had no previous illness to speak of. He was apparently quite well up to Christmas-time, 1915. It was then noticed that he had to get up three or four times a night to pass urine. There was marked thirst, his appetite became inordinate, while his strength and energy languished. He lay in bed almost motionless, took no interest in his surroundings, the upper eyelids drooped, and he slept a good deal. Emaciation was very marked. The skin was rather dark on the legs and its surface dry and rough, owing to minute horny accumulations at the hair follicles. No complaint of itchiness, no eruption on the skin, and no œdema of the ankles. The tongue was very red and the lips were dry and cracked, while the teeth and gums were normal. Bowels costive, motions large. No physical signs of disease in thorax or abdomen. Cardiac sounds normal; pulse varied from 80 to 100; temperature subnormal. No odour from the breath. As a rule, the patient answered questions intelligently, but the nurse reported that his mind sometimes rambled. The plantar reflex and the knee-jerk were completely abolished, and the cremasteric reflex, usually so active in a young boy, was poorly marked. His appetite was voracious and his thirst excessive and unceasing. Micturition very frequent, and he sometimes passed as much as six pints of urine in the 24 hours; on one day four pints in four hours. Urine always odourless, limpid, and brilliant, showing greenish fluorescence. There was never but the slightest trace of any sediment or deposit whatsoever. No crystals visible under the microscope. The specific gravity varied from 1030 to 1050. Reaction acid. Albuminuria was never found. Sugar very abundant, up to 8·33 per cent. (Dr. Alfred Scott.) By Roberts's differential density method I found from one sample 30 grs. in 1 fl. oz. Specific rotation by polarimeter was 6·25 (Mr. Fearon) corresponding to about 9 per cent. sugar; abundant precipitate with phenylhydrazine test. The urea content was not determined. No crystals of uric acid could be obtained by the addition of HCl either to the fresh or concentrated urine. Mr. Fearon failed to find evidence of the production of α-crotonic acid after distillation from sulphuric acid. So rich was the urine in lime that it became opaque white after addition of acetic acid and ammonium oxalate, and there was considerable opacity of phosphates after addition of liq. potassæ. It yielded Gerhardt's reaction with ferric chloride, and developed a fine purple with sodium nitro-prusside and liquor ammoniæ.

The boy's eyes were not specially examined, but there was nothing obviously wrong, and vision was good.

Blood examination by Dr. J. T. WIGHAM.—Red cells, 5,250,000; white cells, 5200; hæmoglobin, 80 per cent. Blood smear appeared normal with due proportion of white cells. Some blood was drawn off and ammonium oxalate added to prevent clotting. The drawn blood separated into two strata. The lower stratum was opaque, dark red. The upper stratum was opalescent, bright red. Both in the fresh blood and in the upper layer of the drawn blood I observed under the microscope numerous spherical refractile globules of various sizes. These stained well with Sudan III., so there was well-marked lipæmia. Dr. Alfred Scott confirmed this observation, using Scarlet R. as a stain. Blood normally contains from 0·2 to 0·3 per cent. of fat.

Diabetes mellitus is uncommon in young children and notoriously runs a more disastrous course than in adults, and especially than cases in middle and elderly life. As v. Noorden puts it: "Infantile diabetes knows no mercy."

Strictly speaking, both glycosuria (or glucosuria) and albuminuria should be regarded not as altogether new events, but as exaggerations of a physiological condition. For it is generally conceded that in healthy normal urine occur traces of (*a*) proteins and (*b*) sugar, or at least reducing carbohydrates (about 0·01 per cent.). The glucose content of normal blood is about 0·05 to 0·15 per cent. In diabetic blood Gardner and Maclean found an average of 0·22 per cent. Even after a prolonged fast sugar is never absent from the blood of the normal animal.

In this communication I restrict my remarks to a few points, and will not attempt a comprehensive survey of a deadly and mysterious affection.

The etymology of the term diabetes has been referred to the Greek word διαβήτης, a siphon. The word also signifies a pair of compasses. The latter is the more plausible idea, derived from the verb διαβαίνω to straddle, connoting the necessity for frequent micturition. Mr. Kennedy, F.T.C.D., informs me that the prefix δια, in Greek, corresponds to *dis*, in Latin, and signifies *separation*.

Nearly 250 years have passed since the sweet taste of diabetic urine was first noticed in Europe by Dr. Thomas Willis (1674). But according to the Ayur Veda (500 A.D.) the saccharine nature of diabetic urine had been known to Hindu physicians from remote times, and in the fifteenth century a disease was described characterised by "honey urine." In 1815 the French chemist Chevreul showed that diabetic sugar closely resembled grape sugar, and in 1848 Claude Bernard proclaimed his fundamental discovery that animals could manufacture sugar, and some years later he demonstrated the glycogenic function of the liver. From that time on the study of diabetes was removed from empiricism and was firmly based upon physiology.

Let us start with a definition of diabetes. Osler's definition in the eighth edition of his "Practice of Medicine," p. 426, runs thus: "A syndrome due to disturbance in the carbohydrate metabolism from various causes, in which sugar appears in the urine, either as a slight and transient condition (glycosuria), or, as a more severe form, associated with thirst, polyuria, wasting, and imperfect oxidation of the fats (diabetes)." In his seventh edition a simpler and better definition was given. I would formulate the definition thus: "Diabetes mellitus is a disease characterised by increased glycohæmia, and by persistent excretion in the urine of sugars derived from faulty metabolism of imperfectly known, and probably various, kinds." This definition is, I think, more concise and more exact, and leaves open for discussion the thesis that there may be several types of diabetes mellitus. Moreover, the definition as stated excludes (*a*) dietetic glycosuria; (*b*) transient glycosuria of corpulent or gouty people (sometimes noticeable only after a principal meal); (*c*) lactosuria of pregnancy, the puerperal state, and in early infancy; (*d*) phloridzin glycosuria (here there is no increased glycæmia); (*e*) adrenalin glycosuria; and (*f*) experimental pancreatic glycosuria—i.e., *complete* extirpation of the pancreas. One-fifty-fifth part of the organ suffices to prevent the development of the symptoms, which show that there is a profound relation between the pancreas and carbohydrate metabolism. The glucose content of the blood may be raised to 0·8 per cent.

The word *sugars* is advisedly used in the plural, for, as a matter of fact, it is well established that several sugars may be concerned in the pathology of diabetes. They fall into three groups: 1. Those with 6 atoms of carbon in the molecule—hexoses, $C_6H_{12}O_6$, or monosaccharides; glucose (dextrose), an aldose; levulose (fructose), a ketose. Levulose may occur along with glucose, and Seegen and others have recorded cases of diabetes where the urine contained only levulose and no grape sugar. The use of starchy foods increased the amount of levulose (Laache, *Harn-Analyse*, 1885). 2. Those with 12 atoms of carbon—bioses, or di-saccharides ($C_{12}H_{22}O_{11}$). Here we meet with the two isomers: Maltose (sometimes concurs with glucose); Lactose. Cane sugar (sucrose) never occurs pathologically. 3. Those with 5 atoms of carbon—pentoses, giving rise to pentosuria ($C_5H_{10}O_5$). It has been shown that, owing to differences in stereo-chemical configuration, only sugars with C_3, C_6, and C_9 atoms of carbon in the molecule are capable of direct fermentation by yeast, and of these only the C_6 group is of interest to the clinical physician. Among the hexoses only the four naturally occurring sugars—viz., *d*-galactose, *d*-mannose, *d*-glucose, and *d*-fructose—are directly fermentable. This is a fact of extreme interest. It follows, therefore, that pentoses are not attacked by yeast. If co-existent with hexoses—e.g., glucose, a pentose could be detected in urine *after*

fermentation with yeast, which destroys only the hexose. After complete fermentation I tested in the foregoing case the urine for pentose by the orcin and phloroglucin tests with negative results. It remains, of course, true that the predominant, and usually the only, sugar present in diabetic urine is glucose.

Notwithstanding a vast expenditure of patient toil and chemical skill, the etiology and pathogeny of diabetes still remain obscure, and I will not spend time upon this intricate, albeit fascinating, inquiry. It is not unlikely to prove true that the prime factors underlying the development of glycosuria are connected with disturbances in the balance of the internal secretions of the body. Neither do I propose to touch upon the morbid anatomy of fatal cases of diabetes upon which we have little satisfactory or illuminating knowledge. I propose to restrict my observations mainly to clinical symptoms and to the conditions observed in the urine. The important subject of treatment must be entirely passed over.

What are the obtrusive symptoms of a fully declared case of diabetes in a young subject? Are they not these? The patient is (*a*) thirsty (polydipsia); (*b*) leaky (polyuria); (*c*) emaciated (autophagia); (*d*) hungry (polyphagia—bulimia); (*e*) saccharine (glycosuria).

We next inquire what are the chief dangers of diabetes. They fall under these heads (cf. v. Noorden: Diabetes Mellitus, 1906):—

DANGERS.	RESULTS.
(*a*) Carbohydrate deficiency.	Lowered nutrition. Carbohydrates are even more essential than fats as sources of body energy.
(*b*) Degenerative changes in the nuclein substances of cells.	Increased excretion of uric acid, and xanthin bases.
(*c*) Abnormal production of acids; derived mainly from breakdown of fats, which are the reserve fund of fuel for active cells.	β-oxybutyric acid. Acetoacetic (diacetic) acid. Coma.
(*d*) Other products of abnormal metabolism.	Excess of acetone. Increased excretion of lime in the urine, and also of phosphates.
(*e*) Diminished resistance to intercurrent diseases. Increased vulnerability of skin, &c.	Tuberculosis. Pneumonia. Various affections of the skin.
(*f*) Chronic degenerative and inflammatory processes in tissues, especially the vascular and nervous systems.	Arterio-sclerosis. Gangrene. Neuralgia. Neuritis. Ocular affections. Albuminuria.

Perhaps the most noteworthy fact in the pathology of diabetes is the wide sweep of changes drawn into the net of the poison or poisons which circulate in the blood and tissues. No part of the body is exempt. From the crown of the head to the tips of the toes there are proofs of ubiquitous mischief-making. Still, it is plain that the most important and familiar clinical symptoms hinge upon perverted metabolism of two groups of foodstuffs—viz., the carbohydrates and the fats, upon which I will make some brief remarks.

Carbohydrates.—A due utilisation of carbohydrate is of supreme importance to the welfare of the body, and it is, moreover, essential to the maintenance of nitrogen equilibrium, for carbohydrates are *sparers of protein*. When the metabolism of carbohydrate is interfered with by complete removal of the pancreas there is a very great rise in the breakdown of body-protein, as is evidenced by the increased output of nitrogen. So that if the tissues of an animal cannot get or utilise carbohydrate directly, they strive to get it willy-nilly from protein, for the cells must and will have carbohydrate food at any price. (Falta, Grote, and Staehelin, quoted by Cathcart, "The Physiology of Protein Metabolism," 1912.)

As a practical side-issue in therapeutics, I may point out that Shaffer and Coleman have clearly demonstrated that the "toxic" destruction of body-protein in fevers may be largely prevented by securing the intake of carbohydrate food. This is highly important in the rational treatment of enteric fever, in which disease I have long been convinced that immense mischief is done by the fetish of an exclusively milk diet. The observations of botanical physiologists also support this contention. For example, it has been demonstrated by Hansteen and others that the presence of carbohydrate is absolutely essential before protein synthesis can take place in plants.

It is time now to inquire how stands our knowledge of the metabolism of carbohydrates and fats. If a lump of starch, sugar, or fat respectively is thrown into the fire it is certain that the ultimate and final products of combustion of all three are the same—viz., CO_2 and H_2O. Expressed in symbols we have:—

(*a*) Starch ... ... $C_6H_{10}O_5+6O_2=6CO_2+5H_2O$.

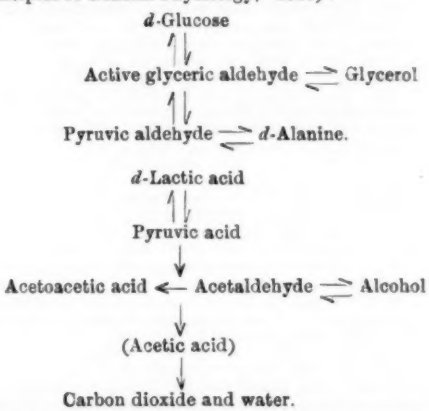
Or, physiologically stated, the respiratory quotient is 1; for $\frac{6CO_2}{6O_2}=1$.

(*b*) Glucose ... ... $C_6H_{12}O_6+6O_2=6CO_2+6H_2O$.

(*c*) Fat ... ... $+(O_2)n=xCO_2+yH_2O$.

But a physiologist or a physician wants to know more than this. He asks, What are the intermediate stages passed through, and whereabouts are breaks or modifications in the sequence of events to be expected or looked for?

The knowledge we possess as to the metabolism of carbohydrates is due mainly to the work of Embden and Dakin, and their associates. It is summarised by Bayliss as follows ("Principles of General Physiology," 1915):—



Most of these reactions are reversible, as shown by the single-headed arrows, and have been experimentally demonstrated as possible and probable steps. The chemical symbolism of the above transformations is not very difficult to follow, but I will not dwell upon it now.

Fats.—From a clinical point of view, and especially as regards the prognosis of a case of diabetes, the metabolism of fats is even more interesting than the carbohydrate changes. For mainly from fats are derived the group of bodies usually known by the unsatisfactory title of the "acetone bodies"—viz., oxybutyric acid, acetoacetic (diacetic) acid, and acetone. Unfortunately, our knowledge of the stages of fat metabolism is extremely deficient and we are sorely in need of more light. The chemical processes involved in the utilisation of fat are not sufficiently understood to enable one to draw up a table such as that given for carbohydrate.

In diabetes it has been shown that fats may and do break down into less complex acids—e.g., oxybutyric and acetoacetic acids, together with acetone, even when the diet is free from carbohydrate, and is formed exclusively of fat and protein. In the normal organism, an exclusively fatty diet, continued for some days, has been found to give rise to large quantities of these partially oxidised products (Bayliss). In short, the output of the "acetone bodies" affords us practically the only clue to the faulty metabolism of fat (Lang, *Biochem. Journ.*, December, 1915).

Acidosis.

Strictly speaking, any condition in which there is an excessive production of acid radicals can be referred to as acidosis. In rheumatic fever, for example, the urine is strongly acid, and often so persists in spite of the ingestion of considerable amounts of alkalies. There is no proof that the acidosis of fevers gives rise to recognisable clinical symptoms, and the amount of acids so formed is relatively trivial compared with their excretion in diabetes mellitus (Foster).

So far back as 1851 Sir Henry Marsh, of Dublin, referred to death in coma as a sequel of diabetes.[1] The view that some of the worst results of diabetes, notably the liability to sudden and fatal coma, are due to the accumulation

[1] Dublin Quarterly Journal, 1851.

of abnormal acids in the blood and tissues is commonly known as the "acidosis theory."

In severe cases of diabetes it is familiarly known that the urine frequently yields a deep claret-red colour with ferric chloride (Gerhardt, 1865), and this reaction is looked upon as a danger-signal. The red colour is ascribed to diacetic acid, which is usually accompanied by its derivative, acetone, and it is commonly held and taught that the hidden precursor of these bodies is oxybutyric acid. Neither acetone nor oxybutyric acid give any colour reaction with ferric chloride, as is stated in some text-books. I use the word "hidden" to signify that there is no simple, or bedside, test yet known for oxybutyric acid. Its detection and estimation can be effected only by an expert chemist in a properly equipped laboratory. This unlucky fact seriously hampers the clinical physician, and has led to many mistakes and unjustifiable assertions. The physician must, perforce, content himself, as a rule, with the detection of diacetic acid and acetone, for which comparatively simple tests are available.

Let us examine a statement made by Osler: "The occurrence of acetone and diacetic acid in the urine, both derivative products of β-oxybutyric acid, is conclusive evidence that β-oxybutyric acid is being produced in the body."[2] Or shall we follow Dixon Mann, who states that in the absence of diacetic acid it is useless to proceed further in the search for β-oxybutyric acid?[3]

Acetone is a normal constituent of the body fluids, and is stated to occur normally in urine to the extent of from 10 to 30 mgrm., or perhaps from 50 to 60 mgrm. daily, derived, by loss of CO_2, from diacetic acid. The transformation may occur spontaneously in the urine—i.e., on this side of the blood. Traces of acetoacetic acid also occur in normal urine—viz., from 2 to 4 mgrm. in 24 hours (Plimmer). On the other hand, excess of acetone is found in a great number of most diverse diseases.

In vitro Dakin has found that when butyric acid is neutralised and digested at 37° C. (blood heat) with H_2O_2 it yields acetoacetic acid, acetone, and other products. It was found impossible to detect β oxybutyric acid as an intermediate product of oxidation, although this substance is readily oxidised by H_2O_2 to acetoacetic acid and acetone. "It is commonly stated in the books that in the mildest forms of acetonuria acetone alone is excreted; if the condition becomes more marked, aceto-acid appears also; while in still more severe cases, β-oxybutyric acid is added to the other two. It appears now that there is no basis of fact for this statement, which is due to the misinterpretation of qualitative tests and to defects in quantitative methods of estimation."[4]

The occurrence of acetone in the breath of diabetics can be accounted for by the difference in the blood circulation. This is slow through the systemic vessels and lung capillaries through which the blood passes before it goes to the kidney. Venous blood is more "acid" than arterial blood, so that the conditions for the decomposition of acetoacetic acid are most favourable. Acetone is very volatile, and if decomposition occurs during the passage of the blood through the lungs it would pass into the expired air (Plimmer).

A long overlooked fact is that acetoacetic acid is greatly predominant over acetone in urine; and it may be as high as 10 times greater (Kennaway). By dilution (20 times) of the urine with water the acetone reaction may be lost, while the acetoacetic acid, on account of its greater sensitiveness, still reacts to Rothera's test.

It is not at present possible to decide with certainty the question whether acetoacetic acid is invariably accompanied in the urine by oxybutyric acid, but, conversely, Stadelmann and others have observed the excretion of considerable amounts of oxybutyric acid in the absence of acetoacetic acid and acetone. Acetoacetic acid decolourises Lugol's solution; acetone does not. Colourless iodo-acetoacetic acid is formed.[5] Care must be taken not to confound creatinin, a normal constituent of urine, with acetone. Both creatinin (Weyl) and acetone respond to Legal's test; acetone only to Rothera's test.

Our present knowledge justifies, I think, the statement that while oxybutyric acid appears in urine usually in conjunction with diacetic acid and acetone, yet either or both of the two latter bodies may be found apart from the former acid. The chemical relations between them are:—

$$(a)\ \underset{\beta\text{-oxybutyric acid.}}{CH_3.CH(OH).CH_2.COOH} + O \underset{\text{reduction}}{\overset{\text{oxidation}}{\rightleftharpoons}} \underset{\text{Acetoacetic acid.}}{CH_3.CO-CH_2.COOH} + H_2O$$

This reaction is reversible, and it is possible that the reverse change may be a source of oxybutyric acid in the body.

$$(b)\ \underset{\text{Acetoacetic acid.}}{CH_3.CO-CH_2.COOH} \longrightarrow \underset{\text{Acetone.}}{CH_3.CO-CH_3} + CO_2.$$

This reaction is irreversible.

The tests usually relied upon for detecting acetone are really tests for acetoacetic acid. It is pure assumption to say that oxybutyric acid is never present in urines which do not give the nitroprusside reaction for acetone and acetoacetic acid. The percentage amount of oxybutyric acid in urine is seldom higher than 0·5 to 1 per cent., although many grammes of it may be excreted in the urine in the course of 24 hours. Magnus-Levy states that he has isolated β-oxybutyric acid from the liver, spleen, muscles, and blood.[6]

Acetoacetic acid and its ester are tautomeric bodies and occur both in the keto and the enol form. The reaction with ferric chloride is due to the enol form, and, therefore, if only the keto form of the acid were present the test would fail. The red solution of ferric acetoacetate is decomposed by boiling and a brown precipitate of basic ferric acetate is formed. Indeed, Dakin and others have shown that the reversible transformation between oxybutyric and acetoacetic acids can be effected in the liver

Table giving Tests for Acetoacetic Acid, Acetone, and Creatinin (modified from the table given by Kennaway).

Reagent.	Author.	Colour.	Given by—			
			Acetone.	Acetoacetic acid.	Creatinin.	Oxybutyric acid.
Neutral ferric chloride.	Gerhardt* (1865).	Clear dark red.	0	+ 1 in 100,000, nearly.	0	0 No colour-test known.
Sodium nitroprusside (recent solution, 5 per cent.) and liquor sodæ (v. potassæ).	Legal (1883).	Red or purple.	+	+	+ Weyl.	—
Sodium nitroprusside and liquor ammoniæ.	Le Nobel† (1884) and Rothera‡ (1908).	Purple or violet.	+ 1 in 20,000	+ 1 in 400,000 (i.e., 20 : 1).	0	—
Lugol's solution (aqueous I and KI) and acetic acid. Chloroform.	Riegler: Lindemann (1901-5).	Iodine de-colourised.	0	+	0	—
Picric acid and liquor sodæ (potassæ).	Jaffé (1886).	Red.	Yellow.	Orange.	+ 1 in 200,000 Johnson.	—

* To avoid confusion it should be ascertained that the patient is not taking drugs which would lead to misleading colour reactions with $FeCl_3$—e.g., salicin, salol, salicylates, aspirin, phenol, or, antipyrin.

† Archiv f. Exper. Pathol. vol. xviii., 1884, p. 6.

‡ Lecturer in Biochemistry, Melbourne.

[2] Practice of Medicine, eighth edition, p. 416.

[3] Physiology and Pathology of the Urine, second edition, p. 115.

[4] Kennaway: Some Notes on the Excretion of Acetone Bodies, Guy's Hospital Reports, 1913, vol. lxvii. (A lucid and excellent paper.)

[5] Cf. Dr. Derham: The Signification of Acetone Bodies in the Urine, THE LANCET, July 31st, 1915, p. 227.

[6] Archiv. f. Experim. Pathol., vol. xlii., p. 188.

of by enzyme action, and that the trend of the reaction depends, among other conditions, upon the oxygen-supply. Much confusion has arisen from ignorance of the fact, first stated by Legal and established by Hurtley,[7] that (Le Nobel's) Rothera's test with sodium nitroprusside and ammonia is given *both* by acetone and acetoacetic acid, and is about 20 times as delicate in regard to the latter. This difference in sensitiveness enables one to form a better idea of the amount of acetoacetic acid present (Kennaway). The test is wrongly fixed in the text-books as one for acetone only. A urine containing 0·01 per cent. acetoacetic acid and no acetone at all will fail to give the ferric chloride colour, while it still reacts to Rothera's test (Kennaway).

Furthermore, it can be laid down that the presence in the urine of acetone and oxybutyric acid is by no means characteristic of diabetes. Oxybutyric acid has been detected in the urine in a number of diverse conditions. Dr. Foster[8] gives a striking experiment in proof of this. Several years ago when fasting was in vogue as a cure for all ills a normal man abstained from all food for five days. The urine was collected by Dr. Foster during the fourth day of the fast. The analysis gave:—

Amount.	Total N.	NH_3-N.	Acetone and diacetic acid.	β-oxybutyric acid.
1410 c.c.	11·42 grm.	1·09 grm. (9·6 %)	0·475 grm.	0 819 grm.

The grade of acidosis represented here is comparable to that found in mild cases of acidosis with diabetes and was induced in this case purely by abstinence from food. In truth, both the fasting man and the acute diabetic are self-cannibals. Any decrease in the alkali value (or relative increase of acidity) of the blood renders the blood less able to retain CO_2, and upon this follows a decrease in the CO_2 content of the blood. The composition of "alveolar air" in the lungs can be measured by the method of Haldane and Priestley.[9] Consequently it would appear that the most scientific method of noting the degree of acidosis in the body consists in determination of the alveolar CO_2 of the lungs, and further observations are most desirable. Normal blood is very near the neutral point in reaction.

The organism possesses two main lines of defence against acidosis: (*a*) The fixed basic radicals, potassium and sodium; (*b*) the neutralising capacities for bases of acetoacetic acid and β-oxybutyric acid are practically identical for their molecular weights differ by less than 2 per cent. (Kennaway). If these bases are not equal to the task an increased amount of ammonia is provided, some of the N-excretion being switched off the normal path of excretion in the form of urea. Hence it follows that increased excretion of ammonia in the urine is a rough index of the degree of acidosis, and this has been shown to be the case in diabetes.

Foster[10] further points out that there are two sources of weakness in the current acidosis theory of diabetic coma. Now one consideration that throws doubt upon the theory is this. The acids concerned occur, it must be presumed, not as free acids, but as salts, in combination with Na, K, ammonia. Sodium is the predominant base. The second weakness in the theory is that the blood in cases of diabetic coma does not invariably show preponderance of hydrogen ions. The blood may *not* be less "alkaline" than normal.

Of 11 cases examined by the electro-chemical method[11] Rolly found the hydrogen ions increased in only three. It is impossible to determine the true *hydrogen ion concentration of the blood* in any other way.[12] So that if further investigations substantiate Rolly's observations some changes in our conception of coma will be imperative. There is no evidence that either oxybutyric acid or diacetic acid exercise any specific toxic action apart from their acidic character. At present all we are entitled to say is that coma may come about by disturbance of the normal delicate adjustment of acid and basic radicals in the blood and tissues without postulating an excess of hydrogen ions in the blood.

[7] THE LANCET, April 25th, 1913, p. 1160.
[8] Diabetes Mellitus, 1915, p. 137.
[9] This method is described and illustrated in Barcroft's valuable book, the Respiratory Function of the Blood, Cambridge, 1914, p. 209.
[10] Loc. cit.
[11] Bayliss: General Physiology, p. 190.
[12] Münch. Med. Wochenschr., 1912, vol. lix., p. 1201.

Summary.

The foregoing inquiry appears to me to justify the following propositions:—

1. There is no simple direct test for oxybutyric acid at our disposal. Its detection can only be effected indirectly. Barium oxybutyrate forms long needle-shaped crystals (W. Caldwell) which are doubly refracting.

2. Neither oxybutyric acid nor acetone gives any colour reaction with ferric chloride. Oxybutyric acid has no reactions in common with acetoacetic acid. Hurtley's method for its quantitative determination by extraction with ether and estimation by titration and optical rotation is described in Plimmer (loc. cit., p. 597).

3. For acetoacetic acid[13] three tests are available:—(*a*) Gerhardt's: Not very sensitive; hence much misapprehension. Failure of the ferric chloride reaction does not entitle one to state that acetoacetic acid is completely absent. (*b*) Rothera's test: Reacts with both acetone and acetoacetic acid. The latter is more sensitive to the test than acetone, in the ratio 20 : 1. One part of acetoacetic acid in 400,000 gives the reaction in five minutes. (*c*) Riegler's test: Differentiates acetone and acetoacetic acid. Method of applying the test: 10 c.c. of urine are acidified with five drops of 30 per cent. acetic acid, and five drops of Lugol's iodine solution are added. This mixture is shaken with 2 or 3 c.c. of chloroform. No colour appears if acetoacetic acid be present (Plimmer).

$$CH_3COCH_2COOH + I_2 = CH_3CO \cdot CHI \cdot COOH + HI.$$
Iodo-acetoacetic acid (colourless).

I have no experience of Arnold's test (para-amino-acetophenone) and little of Hurtley's purple test (iso-nitroso-acetone).[14] They are more complicated and appear to be scarcely necessary. Plimmer, however,[15] considers that Hurtley's reaction is very useful for gauging the amount of acetoacetic acid in a solution or in urine.

4. Acetone does not respond either to Gerhardt's or Riegler's test. Its reaction with Rothera's test is similar to that of acetoacetic acid, but is less sensitive. The sensitiveness of Rothera's test is increased by the addition of a solid ammonium salt (sulphate or chloride). The best way of employing it is this: Over a layer of the salt the urine is floated, and then tested as usual with nitroprusside and ammonia. I can confirm the value of this modification. I found that a specimen of diabetic urine preserved for nearly four weeks still gave a distinct red with $FeCl_3$. When diluted to 1 in 10 it scarcely reacted to the iron test. It failed to respond to Lugol's test, or to Le Nobel's (Rothera's) test until layered over solid $(NH_4)_2SO_4$, when a bright purple-red zone developed. It is stated in Neubauer-Huppert[16] that acetoacetic acid disappears from urine at latest in 48 hours.

5. The amount of acetoacetic acid in urine is usually considerably greater than that of acetone—viz., from 2 to 10 times as much (Plimmer). There are two sources of acetoacetic acid in the urine: (*a*) preformed; (*b*) derived from intravesical decomposition of oxybutyric acid.

6. There is no simple and reliable test at present known for the detection in urine of small amounts of acetone in association with acetoacetic acid.[17] Many data published in connexion with acetonuria are vitiated by ignorance of this fact. Scott-Wilson's method of detecting and estimating acetone alone by conversion into a keto-mercury-cyanide precipitate is described in Plimmer (p. 592).

7. Rothera's test differentiates acetone from creatinin. Creatinin reacts with sodium nitroprusside and either liquor potassæ (sodæ) or liquor ammoniæ. Acetone reacts only with nitroprusside and liquor ammoniæ.

8. The term "acetone bodies" (or "acetonuria") is not a happy one, for it lays stress on the least important member of the triad. Since acetone alone is not infrequently met with in urine, perhaps it would be well to indicate that fact by *acetonuria*, and to use the term *acetouria* for the cases in which acetoacetic acid occurs.

[13] I am indebted to Professor W. Caldwell for a specimen of ethyl-acetoacetate which answers admirably for checking the tests.
[14] Cf. Kennaway and Hurtley, loc. cit.
[15] Pract. Organic Chem., p. 122.
[16] Analyse des Harns, I., 268.
[17] Frommer claims that his test with solid caustic soda and salicyl-aldehyde (purple-red) is specific for acetone only, but according to Bohrisch acetoacetic acid also responds. (Neubauer-Huppert, Analyse des Harns, 11te Aufl., 1910.)

9. The theory of "acidosis" is still incomplete. The modes of origin of "acetonuria" are complex, and are largely influenced by the amount of carbohydrate food assimilated.

10. For the solution of such difficult problems the coöperation of clinical physicians and experts in organic chemistry is essential.

Appendix.

Examples of errors and inaccuracies culled from text-books on medicine and on urinary analysis.

1. Acetone gives a red colour with ferric chloride. This error occurs in Fagge, "Practice of Medicine," edited by Pye-Smith, 1888; and also in Roberts's "Treatise on Urinary and Renal Diseases," fourth edition, 1885. Gerhardt's test for acetoacetic acid was described in 1865.

2. Other substances (than acetoacetic acid)—e.g., formic, carbolic, and salicylic acids—give the *same* reaction in both fresh and previously boiled urine. For *same* read *somewhat similar*. No practised eye would confound the colours.

3. Both oxybutyric acid and acetoacetic acid react similarly with the ferric chloride test. This is not the case.

4. "Fehling's solution is reduced by acetone, but this test should be applied to the distillate from the urine." Acetone does not reduce the copper solution.

5. Rothera's nitroprusside test is true for acetone only. It is a much more sensitive test for acetoacetic acid.

6. Many drugs produce temporary diabetes. For *diabetes* read *glycosuria*.

7. "Large quantities of water are required (by the patient) to keep the sugar in solution, and for its excretion in the urine." Glucose is soluble in its own weight of water. The quantity of glucose in the blood of a severe case of diabetes is a fraction of 1 per cent.

Dublin.

TREATMENT OF SEPTIC WOUNDS, WITH SPECIAL REFERENCE TO THE USE OF SALICYLIC ACID.

NOTES BASED ON CASES AT THE MILITARY HOSPITAL, ENDELL STREET.

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THIS paper is based upon observations made upon approximately 1000 cases of septic wounds treated in the wards and operating theatres of the Military Hospital, Endell-street, during the period of six months from May to October, 1915. With the exception of a few cases from Gallipoli, all the men belonged to the British Expeditionary Force in France, and the majority were admitted to the hospital a few days after they were wounded.

While anaerobic infection was comparatively rare, septic infection was present to a varying degree in all the wounds. In order to test the effect of treatment on the bacterial growth in the wounds numerous agar cultures were made. The usual procedure has been to take cultures from the surface of the wounds, before and immediately after the dressings, each morning on successive days. After overnight incubation at 37° C. the relative number of colonies which developed on these cultures was noted. When wounds are irrigated with reagents such as hydrogen peroxide, weak solutions of perchloride of mercury, carbolic or boric acid lotion, there is often little difference to be noted in the number of colonies which develop on the cultures taken before and after the dressing or from day to day. For this reason the efficiency of many antiseptics when applied to wounds has been questioned, and it is evident that with reagents such as these the action of the lotion is often largely mechanical.

Many of the cases on admission were treated with hypertonic saline solution, either with continuous irrigation or with wet applications repeated two or three times a day. A preliminary test was made to determine the extent of bacterial growth which occurs in a nutrient medium containing varying quantities of salt. The organisms used were the staphylococcus pyogenes aureus and the bacillus coli communis, and cultures were grown in a series of broth tubes containing from 0·5 to 12 per cent. sodium chloride. Quantitative estimations were made of the number of living bacteria added to the culture tubes and the number present after varying periods of incubation. With both micro-organisms proliferation occurred in 5 per cent. salt broth—i.e., in the strength of saline usually employed for surgical purposes; this was, however, much less rapid than in the lower salt dilutions. For example, in broth containing 5 per cent. saline staphylococcus pyogenes aureus increased after 24 hours incubation at 37° C. from 9 millions to 77 millions, and after three days to 708 millions. In broth containing 0·5 per cent. saline staphylococcus pyogenes aureus increased in 24 hours from 9 millions to 435 millions, and in three days to 1012 millions. In the 7 per cent. and 8 per cent. salt media multiplication was still further delayed. In the 10 per cent. and 12 per cent. salt cultures no proliferation occurred; the cultures of staphylococcus pyogenes aureus were still alive after 24 hours, but those of bacillus coli communis were sterile. It follows that when 5 per cent. hypertonic saline is applied to a wound the inhibition of growth due to the salt alone can only be very slight.

The majority of septic wounds heal rapidly if good drainage is provided and frequent dressings are applied. The choice of lotion seems immaterial provided the one selected is non-irritating and fresh infection is prevented. The ultimate recovery of the patient depends upon physiological processes, and if preference is given to any of the above reagents for routine treatment it would be to that which reinforces the physiological processes in the tissues of the wounds—viz., hypertonic saline solution.

In certain cases treatment with the so-called antiseptic lotions and hypertonic saline was not successful, and it was recognised that some improved method was required. The plan adopted was to select a few wounds which did not yield to ordinary treatment. These cases were made the object of a special investigation. Two antiseptic reagents were tried: (1) Eusol, as introduced by Professor Lorrain Smith and his collaborators [1]; and (2) salicylic acid.

Treatment with eusol.—In eusol we possess a valuable and cheap antiseptic. In our experience the immediate effect of eusol is to sterilise the surface of the wound with which it comes in contact. Cultures taken directly after irrigation remain sterile. Numerous colonies, however, will develop on cultures taken after an overnight interval, and there is often no reduction of bacterial growth from day to day. The effect of the eusol is temporary only, because of the infection of the deep tissues. This is well recognised, and to meet the difficulty frequent application or continuous irrigation has been advised. In some cases, however, it is not easy to arrange for continuous irrigation, and whatever contrivance is adopted there is a tendency for the lotion to flow through certain channels to its exit, with the result that large areas of the wound do not get irrigated. In spite of these disadvantages, the clinical results obtained from eusol are very encouraging, and some cases have responded more rapidly to it than to other reagents. The following case illustrates its use:—

CASE 1.—Private, aged 19. A large abscess of the calf of the leg was opened; the pus grew staphylococcus pyogenes aureus. The cavity was irrigated with eusol and packed loosely with gauze soaked in eusol. Irrigation and the dressing were repeated twice daily, and each morning cultures were taken from the wound immediately before the irrigation. A series of cultures were thus obtained. From the first to the sixth day numerous colonies grew, and the cultures were indistinguishable from one another. On the seventh day there was a marked reduction in the number of colonies. On the eighth day only two or three colonies developed, and the subsequent healing of the wound was rapid. This series can be explained by the fact that free exudation from the abscess during the first six days diluted the eusol and washed it away from contact with the tissues. It was only when the exudation ceased that the antiseptic remained in contact sufficiently long for its action to be evident after an overnight interval.

In cases where eusol has not been a success the failure was apparently due to the fact that continuous treatment was impossible, and the effect of the antiseptic was transitory. Very little reagent is left in contact with the

[1] Brit. Med. Jour., July 24th, 1915; THE LANCET, Feb. 5th and 12th, 1916.

surface of a well-drained wound after irrigation with a watery solution. Treatment with salicylic acid in various forms was therefore tried, in some cases with conspicuous success.

Treatment with salicylic acid.—The examination of healing wounds shows that the presence of a certain number of bacteria need not be detrimental. In many instances rapid healing occurs in spite of their presence. Healing is usually not delayed unless exudation collects or the bacterial growth becomes sufficiently plentiful to liberate toxin or to produce ferments which digest the tissues. A continuous inhibition of bacterial growth may be more effective than the action of a powerful but transitory reagent. Salicylic acid is not such a powerful antiseptic as the hypochlorites, but it lends itself to continuous administration. Its properties as an antiseptic are well known, and it has recently been recommended by Sir William Watson Cheyne and his collaborators for use as a powder mixed with boric acid for a first field dressing. It is a light powder, feebly soluble in saline solution. If applied to a wound in a crystalline form it does not dissolve sufficiently freely to cause necrosis. Tested with a Ponder's film, salicylic acid is a positive chemiotactic agent. It is also a lymphagogue.

The method has been to keep a saturated solution of salicylic acid in alcohol and to add a little of this to the last funnelful of saline solution with which the wound is irrigated in a proportion of 2–3 drachms to a pint. If applied in this way suspended in saline solution the crystals can be deposited over the surface and reach every part of the wound. They pass into solution slowly and exert a continuous bactericidal action. This method has the advantage that drainage-tubes can be used and free exit for discharge maintained. Dusting the wound with the dry powder has the disadvantage that the crystals float and do not reach deep crevices.

If the crystalline deposit reaches all parts of the wound where exudation is being discharged an immediate diminution occurs in the number of living bacteria on the surface of the wound. This decrease in the number of colonies occurs even when the cultures are made 24 hours after the last dressing, and this change in the bacterial flora is associated with a diminution in the amount of pus and usually with an improvement in the patient's general condition.

Salicylic acid may cause smarting, which usually subsides quickly, and in contact with blood it produces dark-brown acid hæmatin, which has an unpleasant appearance. These slight disadvantages do not, however, detract from its value as an antiseptic.

A thick paste of salicylic acid in sterile saline (1 gm. acid, 9 c.c. saline) has been used for the cut surfaces of long bones in septic amputations. In some cases the stumps have healed by first intention. In others slight sepsis occurred in the muscular flaps. In every case no infection of the bone marrow occurred.

The following cases illustrate the use of salicylic acid as an antiseptic dressing:—

CASE 2.—Private, aged 19. Admitted with septic wound of right knee-joint. The bullet had penetrated the joint and lodged in the outer condyle of the femur. The patient had been in hospitals in France for some weeks previously, and was in a very septic condition. The bullet had not been removed. The knee-joint was drained thoroughly and washed out twice daily with eusol. His condition improved, and sepsis subsided except in the neighbourhood of the outer condyle of the femur in which the bullet was embedded. At a second operation for removal of the bullet it was found that rarefactive changes had occurred leading to the formation of a considerable cavity in the bone, in the centre of which the shrapnel bullet lay. The walls of the cavity were scraped and cleaned with dry gauze and the space then filled with thick salicylic paste, and the external wound closed except for a small drainage-tube which was left in for 24 hours. Dry gauze dressing was applied externally. For the next three weeks no irrigation was employed, the gauze dressings only being changed. The temperature remained normal, and six weeks after the operation an X ray examination failed to show any trace of the cavity in the bone. He made an uninterrupted recovery.

CASE 3.—Private, aged 23. Was admitted with a compound fracture of the neck of the femur and necrosis of the separated head. After weeks of sepsis excision of the head of the femur was undertaken. For ten days following the operation the joint cavity, which was exceedingly septic, was treated with eusol twice daily. The pain and position of the wound prevented more frequent dressing. As the sepsis did not improve eusol was discontinued and the cavity of the joint was filled with a mixture of salicylic acid and saline. Immediate diminution in the discharge and number of bacteria took place, and the patient entered on a slow but steady convalescence.

Salicylic gelatin.—Treatment with salicylic acid in a crystalline form has only been adopted for acute cases and for a short time. In the case of large wounds where the treatment was prolonged, it was thought desirable to diminish the quantity of the drug used. A gelatin medium was therefore made containing salicylic acid 2–4 per cent., in the hope that the viscosity of the mass would help to retain the reagent in the wound. This medium has been used for a large number of cases with considerable success.

The gelatin is prepared in the following way: 300 gm. of gelatin are added to 600 c.c. of freshly made normal saline solution. After melting in the steamer the medium is cleared with egg-albumin and filtered. It is divided into quantities of 100 c.c. and put into glass-stoppered bottles, which are then sterilised at 100° C. for three successive days. Special care must be taken with sterilisation as gelatin is liable to contain tetanus spores. When required for use a bottle is placed in warm water until the gelatin has melted and 2–4 gm. of pure salicylic acid are added. The acid must be added after sterilisation is complete and when the temperature is below 40° C. If the medium is subjected to prolonged heat after the acid is added the viscosity is lost. In 2 per cent. solution the salicylic acid dissolves completely and combines with the gelatin. In 4 per cent. solution some of the crystals remain in suspension. The fluid gelatin is poured into the crevices of the wound either through an irrigating funnel or directly from the bottle, and requires to be repeated daily.

In cases where the medium is retained in the wound it has often been noted that the bacterial flora will change when the treatment commences, pure cultures of streptococci being obtained, after an overnight interval, in wounds which previously grew a variety of organisms. The following cases illustrate the value of this treatment.

CASE 4.—Private, aged 32. Was admitted from a base hospital in France, where a flapless amputation had been performed through the lower third of the left thigh. The wound was very septic. Treatment with saline irrigation and later with strong solution of permanganate of potassium was employed for six weeks. He lost ground. Pus tracked up the muscles of the thigh. Operations were performed for opening sinuses, &c. He became emaciated and cachectic, and finally it was decided that further surgical interference could not be undertaken. At this stage treatment with salicylic acid gelatin was commenced and was applied twice daily. Local reaction was immediate. In a few days the pain ceased, the discharge diminished, and the temperature gradually subsided. Some days later an abscess was opened in the thigh, and after this he made an uninterrupted slow recovery.

CASE 5.—Private, aged 24. Admitted from a base hospital in France, where a flapless amputation had been performed through the middle of the left thigh. The bone was projecting and the wound was extremely septic. After six weeks' treatment with hypertonic saline solution a secondary amputation was done and large drainage-tubes inserted. Three days later the flaps became inflamed and septic. The trouble subsided rapidly under irrigation with peroxide of hydrogen and the application of salicylic gelatin introduced by means of an irrigating funnel.

Conclusions.—The conclusions to be drawn from these observations are:—1. The bactericidal action of many of the so-called antiseptics when applied to septic wounds is negligible. 2. The majority of wounds heal without the application of an antiseptic, provided free drainage is supplied and dressings are changed frequently. Hypertonic saline, in so far as it aids physiological processes, is preferable to many so-called antiseptics. 3. A strong antiseptic, such as eusol, can sterilise the surface of a wound with which it comes in contact, and, if applied continuously, gives excellent results. 4. Salicylic acid applied in a suitable form can often save cases when other methods have failed. It is particularly useful when dressings cannot be repeated at frequent intervals. 5. In all cases where recovery is delayed and the effect of the reagents of doubtful value the treatment should be controlled by making repeated cultures from the wound surfaces.

ON THE ILL-TREATMENT OF GENITAL PROLAPSE.

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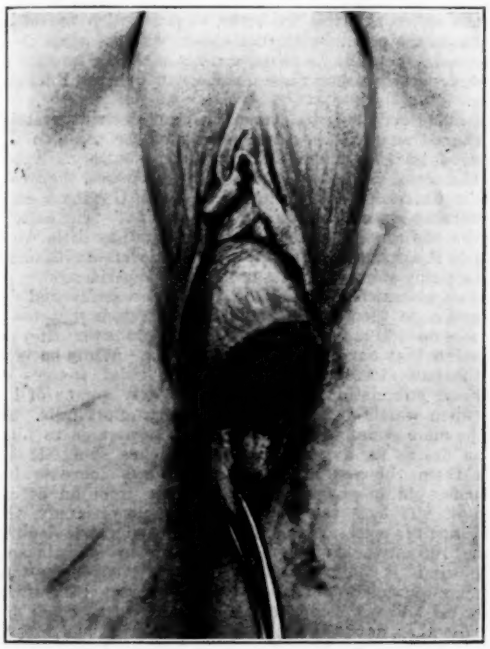
THE two photographs (Figs. 1 and 2), illustrating the recurrence of genital prolapse, were kindly taken by Mr. R. S. Paterson in the Gynæcological Unit of the Manchester Royal Infirmary.

Fig. 1 is from a patient, aged 49, who has had several confinements and who reached the menopause three years ago. Her cervix first appeared in the vulvar cleft some 20 years ago, and during the last five years she has had two abdominal operations for this condition without even temporary benefit. The uterus is six inches long, its fundus is fixed to the abdominal wall, and the cervix projects two inches beyond the vaginal outlet. The vaginal roof is considerably inverted from above downwards. There is no cystocele and no rectocele. The case is an example of the use of ventrifixation instead of amputation of the cervix, with excision of the anterior vaginal fornix and perineal repair.

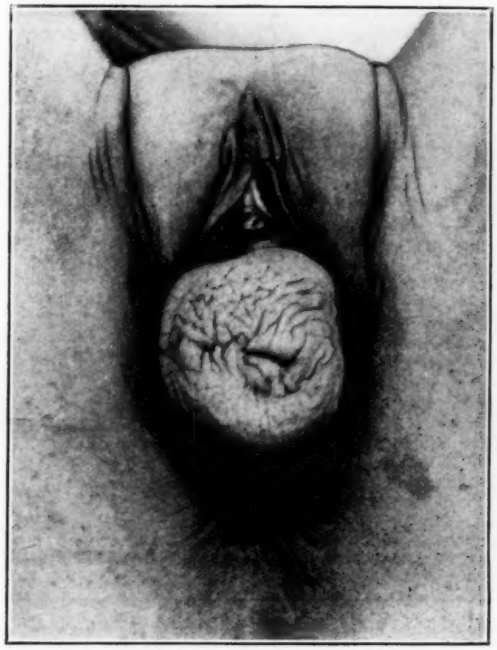
FIG. 1.



Result of ventrifixation for prolapse.

Fig. 2 is from a patient, aged 53, who has had "falling of the womb" since her first confinement, 33 years ago. The condition was treated by vaginal hysterectomy, which gave temporary relief, but the trouble returned within two years. The vagina is now completely everted and forms a sac which contains bladder and intestine. Thus cystocele is present; but there is no rectocele, the anterior rectal wall being in its normal position. The scar of the vaginal hysterectomy, as seen in the illustration, looks like a transverse os uteri. The case exemplifies the removal of the uterus instead of the removal of the anterior vaginal wall and cervix with repair of the perineum.

FIG. 2.



Result of hysterectomy for prolapse.

It is more pleasant to leave ill alone than to call attention to it; the worker prefers to bring forward improvements and to say nothing against the work of others, and, if something better is offered, bad methods doubtless die out in time. But they are slow to disappear, and a gentle graveward push is sometimes desirable.

Manchester, for some reason or other, has been called "the home of prolapse." Certainly some 600 plastic vaginal operations are done every year at the St. Mary's Hospitals, and from 60 to 70 at the Royal Infirmary. Dealing with patients in these large numbers we are often able to observe the late results of various operations done elsewhere, not all free from risk and mainly German in origin, that are still being used for prolapse in this country. Some of the patients have been subjected to sterilisation and "interposition" of the uterus between the bladder and the anterior vaginal wall. Some have had the uterus removed, not because it was diseased, but because it was loose. Quite a number have had the fundus attached to the abdominal wall by ventrifixation. Others have undergone abdominal operations which aim at using the round ligaments as uterine supports. These patients still complain of cystocele, rectocele, or a combination of the two, of true prolapsus, or of protrusion of the cervix at the vulva with inversion of the vaginal roof. A great many patients, moreover, have worn horrible pessaries for years and have been told that there is no operation which will safely and certainly give them relief. Thus, what with pessaries on the one hand and futile operations on the other, women with prolapse have a lot to put up with. But we need not unduly "hymn their woe, knowing, as well we know, that all can be set right" by plastic vaginal surgery (apologies to Gilbert).

Having expressed these pious opinions, I should perhaps indicate the operations which I consider to be really suitable for the common forms of genital prolapse, which are four in number.

1. *True Prolapsus.*

The uterus, vagina, and bladder are all loose. The anterior vaginal wall appears first at the vulva and is everted from below upwards (cystocele); the cervix follows it, and, in advanced cases, the posterior vaginal wall follows the cervix and so completes the "*procidentia.*" Common in parous women, seldom or never seen in virgins and nulliparæ.

Treatment.—Excise most of the anterior vaginal wall with the front half of the vaginal roof. Remove the cervix also if it is unhealthy or if the uterus is more than three inches long. The writer's method of combining anterior colporrhaphy with amputation of the cervix is useful.[1] (Fig. 3.) Repair the perineum.

[1] Journal of Obstetrics and Gynæcology of the British Empire, July, 1914, and March, 1915.

2. *Long Cervix.*

The uterus is long and loose. The cervix appears first at the vulva and the vaginal roof is inverted from above downwards round the elongated cervix. There is no cystocele. This is the form of prolapse seen in virgins and nulliparæ as well as in parous women. (Fig. 1.)

Treatment.—Excise the front half of the vaginal roof together with the cervix, leaving the uterus three inches long. Repair the perineum.

3. *Cystocele.*

The anterior vaginal wall is everted from below upwards as in true prolapsus, but the uterus retains its normal position. Seen in parous women with defective perineum, but not in virgins and nulliparæ.

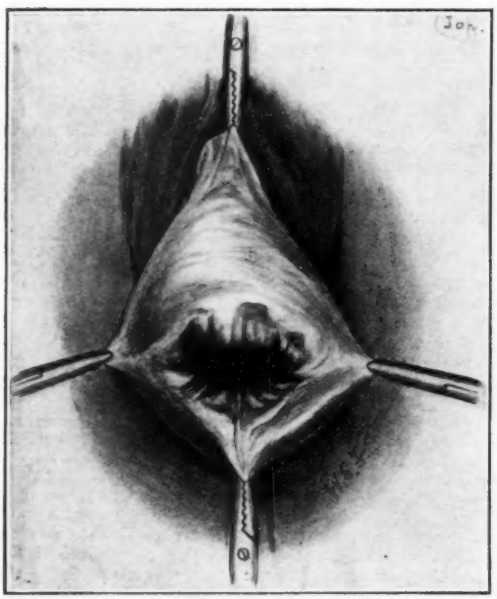
Treatment.—Anterior colporrhaphy and perineal repair.

4. *Rectocele.*

The posterior vaginal wall is everted from below upwards with the anterior rectal wall adherent to it. Seen in parous women with torn perineum, but not in virgins or nulliparæ.

Treatment.—Remove most of the posterior vaginal wall and repair the perineum. The best method is Professor

FIG. 3.



Case of true prolapsus prepared for operation by the writer's method. The incision will join the four pairs of forceps, thus enclosing the anterior vaginal wall, anterior fornix and cervix, which are to be removed in one piece. (Drawing from photograph by Dr. A. W. Mather.)

A. Donald's colpo-perineorrhaphy, which is done from above downwards so as to combine the two operations.[2]

It is hardly necessary to say that the four forms of prolapse occur in various combinations. Thus rectocele may be seen alone, with cystocele, with true prolapsus, or with long cervix and vaginal inversion.

Manchester.

[2] Ibid., March, 1908.

CORNISH CHEESE.—Mr. J. F. Blackshaw, of the Board of Agriculture, recently gave an interesting address to the students at the Cornwall Cheese School, Lelant. He stated that cheese could be made anywhere in Cornwall if the maker had reasonable knowledge and took ordinary precautions with regard to the cleanliness of milk. In each gallon of milk 1 lb. to 1¼ lb. of cheese was obtained by some of the students, but it took about 2½ gallons of milk to make 1 lb. of butter. Consequently they would be doing more good to win the war by making cheese than by making butter. About 80,000 cows and heifers in milk were kept in Cornwall, and if 80 per cent. of the milk in Devon and Cornwall was made into cheese it would go a long way towards supplying food for the British army.

A FACTOR IN THE TREATMENT OF HEAD INJURIES AND ALLIED CONDITIONS.

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CRILE has shown experimentally that a similar clinical condition with essentially similar pathological appearances in the brain may arise from four different causes: (1) Any exhausting peripheral or central stimulus; (2) cerebral anæmia; (3) psychic causes; (4) poisons, organic and inorganic. An example of the acute phase of this general condition is sometimes seen at or soon after a surgical operation, while the "neurasthenia" that follows a head injury or so-called shell shock represents a more chronic phase. The neurasthenia that follows a head injury is probably the purest of all neurasthenic conditions, in that it may arise instantaneously in a perfectly healthy person from a single cause, though later on other factors may, and probably usually do, help to maintain and even exaggerate it. The existence of a head injury would appear to be too apt to be regarded as *per se* explaining everything that follows, and the sufferer is free from the stigma which too often attaches to the patient with shell shock, whereas apart from the actual injury and its direct consequences the two are in the same position but have reached it by two different routes.

The living body may be compared to an electrical system, and neurasthenia, in the widest sense of the term, to the effects on such a system of an inefficient battery. Apart from the actual injury and its direct consequences, the treatment is concerned with what Sir James Goodhart calls "watts, ampères and volts of nervous energy." The battery must be maintained and strengthened, and as little work put upon it as possible, while the patient's vicissitudes make an interesting study in the light of Crile's experiments.

Asthenopia exists at first in almost all these cases, and the application to them of Weir-Mitchell's dictum that neurasthenics do well unless they have asthenopia is that they do well unless they have persistent asthenopia. While he is in bed the patient's eyes are one of the chief sources of peripheral stimulation, and almost the only organs of his body upon which any constant voluntary effort falls. At first the mere stimulus of light may be intolerable to him, and he lies as far as may be with his eyes shut. If he opens them, blurred and ill-fused images increase his headache, giddiness, and nausea. Apart from an actual lesion of the eyes themselves or their nerve-supply, the visual acuity, even at this early stage, depends mainly on the refractive error. The reason why the images are blurred is chiefly because in his weakened state the neuro-muscular effort necessary to correct his refractive errors and give him clear images is too much for him; in other words, his ocular compensation has broken down. We learn to use our eyes in babyhood, and do not realise the extent of the effort necessary to maintain this compensation. More than this, the child can suppress the image formed by one eye, and after a shock or debilitating illness not infrequently protects himself by ignoring the more blurred image and allowing the eye producing it to wander at its own sweet will. This condition goes on until either he becomes strong enough to maintain the compensation of both eyes, or the task is rendered easier for him by glasses which give him two clear images. The adult is in no such fortunate position. With him binocular vision has usually become an ingrained habit, and he cannot suppress the image formed by either eye. If his compensation breaks down he has to deal with two blurred images, and blurred images are exceedingly difficult to fuse, whereas clear images are probably more easily fused than not. The result is that such a patient either has diplopia or is on the verge of it, and there is a constant effort going on involving three groups of muscles—those concerned with the correction of the refractive error of each eye, mainly, of course, the ciliary muscle, and those concerned with the maintenance of the parallelism of the visual axes. It is doubtful whether a pure paresis of an external ocular muscle ever occurs without a previous paresis of the ciliary muscle, and the treatment of

a paralytic as well as of a concomitant squint lies in the correction of the refractive errors so as to produce two easily fusible images. Nature is apt to treat conditions favouring diplopia by the development of a ptosis. I was recently asked to report on a case of diplopia and recorded the glasses that gave perfect binocular vision, but was told that the information required was which muscle was affected.

Suppose a patient who was in the habit of walking ten miles a day without conscious effort and probably with great benefit, suddenly got a hernia cerebri; no sane medical man would dream of allowing him to attempt his usual walk immediately after his accident. Yet a not dissimilar thing is done habitually by allowing these patients to struggle with the difficulties of binocular vision. If anyone doubts the effort involved in distant vision, he has only to go, say, to the Strand on a sunny summer day and study the different varieties of the frontal wrinkles of the passers-by and the mechanism of their production. He will then realise what this effort may mean to a patient whose nervous energy is at its lowest ebb. If a patient definitely complains of constant diplopia he is almost sure to have one eye covered, but all these patients are on the verge of diplopia and most of them would benefit to a surprising extent by the covering of the eye which produces the more blurred image. This is only an imitation of nature's methods, and automatically cuts out two of the three groups of muscles involved, besides diminishing the sources of peripheral stimulation. Many can see clearly in the distance with one eye when they cannot with two; many can read with one eye but not with two, and there is much relief both to headache and giddiness; care must be taken to prevent too much reading. It is essential to find out which is the right eye to cover, and it should be covered with an interval of a few hours every four or five days until the patient is strong enough to deal with both eyes. When a patient is wearing a head bandage, it should be made to include the more unsound eye; in other cases a comfortable shade should be used. This method is applicable not only to head injuries but to other acute forms of neurasthenia. It has been said that it will be generations before the value of Weir-Mitchell's discoveries in this direction is fully recognised.

For the observation of the frequency of diplopia in these cases at one period or another I am indebted to Deputy-Surgeon-General H. W. G. Doyne, R.N.

A NOTE ON SPINAL ANÆSTHESIA.[1]

BY S. B. GADGIL, F.R.C.S. ENG.,
LIEUTENANT, I.M.S.

IT is very surprising that notwithstanding the fact that spinal anæsthesia was introduced into England by the able advocacy of the late Lieutenant-Colonel A. E. Barker, for the last ten years it has been adopted only by a minority of surgeons in civil practice and by an even lesser number in military practice. I have inquired from different medical men on the subject, and I would like to offer some explanation as to why people feel shy about using this kind of anæsthesia. I propose also to make a few suggestions and invite discussion from those who are experienced in its use. My experience is based on 500 cases, some treated abroad, but most of them in London.

I may summarise the reasons for non-success in the use of the method of anæsthesia in the following way:—

1. *Difficulty in entering the spinal canal.*—This may be due either to nervousness on the part of operators or on that of their patients, whose confidence they have failed to win and who consequently do not keep steady at the time they feel the prick of the needle.

2. *The position in which the patient is placed at the time of introduction of the needle.*—There are two positions in which the needle may be introduced. In the first the patient is required to bend forward while sitting at the end of a table; in the second he lies on one side, always, of course, in fully bent position. I have found it more difficult to introduce the needle into the spinal canal when the patient lies in this second position; the first is, in my opinion, the more convenient.

3. *Position after the anæsthetic is introduced.*—I think that after the injection of the drug the patient is kept with his back propped up too high from the horizontal.

4. *Amount of drug injected.*—The amount of stovaine injected is, in my opinion, generally not sufficient.

5. *The fear of collapse.*—This, I think, unnerves the surgeon because he is aware that the patient is watching his actions with anxiety.

My suggestions to counteract these defects are:—

1. Do not be disappointed if you do not get into the spinal canal at the first attempt; difficulty in this matter is more common than is generally acknowledged.

2. For the novice the position of getting the patient to sit at the end of the table and to stoop over is better than the one of lying down on the side; also in the fully bent position, as stated before. (*a*) Always see that the lumbar spines are quite prominent before introducing the needle. (*b*) Puncture at the upper margin of any of the lumbar vertebræ from the second to the fourth. (*c*) Keep the point of the needle absolutely in the middle line and the whole needle perpendicular to the skin. (*d*) Do not follow the text-book advice, which is to insert the needle a little away from the middle line a little upwards and inwards. In practice I have found that the canal is often missed in following this text-book advice.

3. I always give a full ampoule of the stovaine and glucose solution, which is equivalent to a grain of stovaine, in all adult cases. I have never had any bad effects which I could attribute to a big dose. This full dose does away with the necessity of shaking gently the patient by making him sit and lie down a dozen times for diffusion of the drug, as I have seen done.

4. In some cases when operating only on one side of the body I have found it very useful to introduce the drug when the patient is lying on the side to be operated upon, even when the needle has been introduced while the patient is sitting at the end of the table in a stooping position. I will make this statement more explicit. Say I want to operate on the left knee. I make the patient sit at the end of the table in a stooping position, I introduce the needle into the canal, and when the needle is in, as shown by the escape of the cerebro-spinal fluid, I gently lay the patient on his left side before I introduce the drug. He lies in that position for a minute or two and is then ready for the operation, so that I put him on his back comfortably before starting.

5. I never use this anæsthetic for any operation above the level of the umbilicus. It takes about ten minutes for anæsthesia to spread from the trochanter to the umbilicus, while for rectal operations the effect is immediate.

6. It is unnecessary to test the sensation before starting operation; though protopathic sensibility is lost, epicritic sensation remains for a longer time, and the patient says he feels pain while he is only feeling a light touch.

7. Never introduce the drug unless the cerebro-spinal fluid is seen escaping freely.

8. When operating on abdominal cases or on any very nervous individual I give a hypodermic injection of morphine gr. ¼, atropine gr. 1/100, and hyoscine 1/100, three-quarters of an hour before operation. The patient generally remains asleep during the whole course of the operation.

9. Do not be nervous about the position of the head. Keep the back rest about 30° from the horizontal. This height is quite sufficient. I have seen patients propped up to about 45° or more from the horizontal. The anæsthetic does not diffuse rapidly and the blame for non-success of this anæsthetic is attributed to the unreliability of the drug.

10. When a patient shows signs of collapse, which are paleness, nausea, vomiting, and cold perspiration, do not be perturbed—leave him as he is for the moment, and (1) give him at once liquor strychninæ min. v. hypodermically; (2) raise both legs up in the air, trying to meet the head, as used to be done in order to stretch the sciatic nerves in the old-fashioned way without an operation; and (3) put with the forearms great pressure over the abdomen for five minutes or more. Generally the operation may then be continued within ten minutes.

11. Headache is the only after-result I have met. I tell the patients that they would be quite well next day and I give gr. x. of aspirin as a placebo.

[1] A paper read at a clinical meeting held at a general hospital on Feb. 10th, 1916.

I think a knowledge of the above points would conduce to more frequent use of this most useful anæsthetic. It diminishes the number of assistants absolutely essential for any operation on the lower extremity, and it relieves the anxiety of those who have a great dread of either chloroform or ether.

NOTE ON THE FUNCTION OF THE MEDULLARY NERVE SHEATH.

BY C. E. H. MILNER, M.R.C.S., L.R.C.P. LOND.,
CAPTAIN, R.A.M.C. (T.)

APART from its action as a protective buffer against injury to the nerve fibres there has always existed some doubt as to the function of the medullary nerve sheath, and physiologists have from time to time held different views. The following facts, therefore, which have been observed recently in cases of nerve-trauma due to gunshot wound and one to other causes, appear to me to throw definite light on a question which has hitherto been the subject of some controversy. I quote the following instances as being of clinical significance.

1. *Loss of voluntary physiological excitability in a muscle without loss of faradic reaction.*—During the removal of a shrapnel bullet from the posterior triangle of the neck the spinal accessory nerve was accidentally divided. The cut ends were sutured. The trapezius muscle on that side was immediately paralysed. But its faradic reaction, which was recorded daily, was found to persist until the eighth day.

2. *Return of voluntary physiological excitability without return of faradic reaction.*—(*a*) Two men had received injuries to both the median and ulnar nerves of the left arm, which were found at operation to be so severe that in both cases the nerves were divided cleanly above and below the site of injury, and sutured end to end. After ten weeks of daily massage and electrical treatment some return of movement was observed in the short muscles of the thumb. But there was no return of faradic reaction. (*b*) The same is the case with a small boy who accidentally cut across his ulnar nerve with a penknife 18 months ago. The nerve was sutured end to end. Twelve months after operation all the interossei and adductor pollicis were working well, but failed to respond to the faradic current. Nor do they react to faradism at the present date, 18 months after the original injury and six months after the return of good movement. (*c*) A similar condition of non-return of faradic reaction is to be seen in two cases of severe injury to the brachial plexus. Both were due to violent dislocation of the shoulder-joint. Neither was operated upon, but in both cases extensive paralyses of the arm and hand have recovered in about a year without return of faradic reaction.

The facts recorded above have led me to believe that the medullary sheath acts as a conductor for the *electric* current; while its existence is unnecessary for the transmission of *physiological* impulses, which are dependent solely upon the continuity of the axis-cylinders. In the case quoted of division of the spinal accessory nerve, it was noted that the physiological impulse failed from the outset to reach its destination, whereas the electrical impulse persisted until the eighth day.

Now Marchi's fluid contains osmic acid, which stains fat black, and is used to stain sections of nerves in order to demonstrate the degeneration of the medullary sheath—that is to say, its replacement by fat. But this method is found to be unsatisfactory until about the eighth day after section of the nerve has been performed. This period of time coincides exactly with that which elapsed in my case before the trapezius failed to respond to faradism. It is fair, therefore, to assume that division of the axis-cylinders (even if immediately brought into rough re-apposition) is sufficient to interrupt the passage of the physiological impulse, but that the electrical impulse is interrupted only by complete degeneration of the medullary sheath.

The only way to prove beyond doubt the accuracy of my contention would be to operate again upon the two cases of return after nerve-suture of muscular action without return of faradic excitability and upon the cases of ulnar and brachial plexus injury, and to find microscopically the axis-cylinders regenerated at a more rapid rate than the medullary sheath—i.e., the process in the latter case not yet complete.

In the absence of such possibility I am conscious of the incompleteness of my proofs. But the facts instanced above seem to be of real value in that they are the results of clinical observation.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

RUPTURE OF BLADDER DUE TO RETROVERTED GRAVID UTERUS.

BY JOSEPH E. G. CALVERLEY, M.D. LOND., C.M.G.

IT is on account of the rarity of spontaneous rupture of a healthy bladder from pressure caused by a retroverted gravid uterus that I record this case.

The patient, aged 32 years, had had four children, the last one being born three and a half years ago. The menstrual periods were regular till August 29th, 1915, when they only lasted one day. For a little time there had been complaint of dragging pain and difficulty in micturition, and during the last fortnight some swelling of the abdomen had been noticed. At this time the patient was able to do her ordinary household work, but for the last ten days had had to keep to her bed on account of the pain and swelling of the abdomen and difficulty in passing urine. Some days she could micturate and at other times not, and for the last three days had not passed any urine at all. On Oct. 11th at 5 A.M. she was seized with excruciating pain in the abdomen whilst turning over in bed, and felt that "something had twisted inside." She had slept well that night with the help of morphia pills for relief of the pain. The medical man, under whose care she had been, sent the patient into the Royal Victoria Hospital, Folkestone, with a diagnosis of "twisted ovarian cyst."

An operation was performed seven hours after the onset of the acute abdominal pains. The abdomen contained pints of slightly blood-stained fluid. The uterus, the size of a cocoanut, was firmly impacted in the pelvic cavity below the pelvic brim. The bladder had a rent, measuring 2½ inches, situated to the left side of the fundus, and running in a horizontal direction. This tear was carefully sutured, and the abdominal wound closed except for a large drainage-tube. The patient made an uninterrupted recovery, and was allowed to pass urine naturally after the fourth day. On March 25th, 1916, she gave birth to a male child.

Folkestone.

ANÆSTHETISATION OF TWO CASES OF PATENT DUCTUS ARTERIOSUS.

BY HUGH R. PHILLIPS, M.D. EDIN.,
SENIOR ANÆSTHETIST, ITALIAN HOSPITAL; ANÆSTHETIST, KING GEORGE HOSPITAL, ENDSLEIGH PALACE HOSPITAL FOR OFFICERS, ETC.

THE two following cases seem to me to be worth recording, since I can find no account of any such case from the point of view of the anæsthetist.

CASE 1.—The patient, a young woman aged 20, was a patient of Dr. H. J. F. Simson, and had been seen and treated by Sir James Mackenzie; to both of these gentlemen I am indebted for permission to publish this account. The occasion was that of a first confinement, and the patient had gone to the full time. When I arrived the os was fully dilated, pains were frequent and strong, the pulse was 110, of good volume, and the colour of the face and fingers was pink. I at once commenced the administration by giving a mixture of warmed oxygen passed through chloroform. Anæsthesia was sufficiently deep in eight minutes to permit of forceps being applied. At this time the pulse became smaller in volume, so a few drops of ether were sprinkled on the mask. Immediately the face became dusky and the breathing embarrassed. Oxygen was administered by itself for a few minutes till the colour became normal, and then chloroform was cautiously added. The patient remained comfortable under its influence until the completion of the operation. The length of anæsthesia was 23 minutes. There was no vomiting or after-feeling of nausea. The amount of anæsthetic used was very small—namely, 6 drachms of chloroform and less than ½ drachm of ether.

CASE 2.—The second patient I have anæsthetised on five different occasions, each time for the removal of teeth. He is now aged 44. When only a few months old he was seen by Sir William Jenner, who diagnosed the condition and gave it as his opinion that he would not live long. The patient was seen recently by Dr. Alexander Morison to confirm the condition, and he considers that the chief lesion is probably a defect of the interventricular septum, with patency of the ductus arteriosus. The complexion is always inclined to be dusky, and the fingers are clubbed and blue.

In 1905 Mr. Leonard Matheson removed three teeth. Gas with a mixture of air was administered in the usual way; after a few breaths the face became almost black and the breathing embarrassed. The teeth being loose were easily extracted. Recovery was rapid, and after remaining in the dentist's chair for a few minutes he was able to return home. There were no bad after-effects. The anæsthesia was very short. In 1907 the patient had gas administered again during my absence from town, and apparently it was quite satisfactory at the time, but for some days after he felt ill and unable to do anything.

In 1914 Mr. Edward Harrison saw the patient, and as there was so much pyorrhœa he considered it advisable to remove all the remaining teeth. On the first occasion three were removed at Mr. Harrison's surgery. I administered gas and oxygen with Hewitt's apparatus. The anæsthesia was short and accompanied by no alarming symptoms at the time, but in the evening the patient collapsed and became quite ill. In consequence of this we thought it would be better that he should go into a nursing home on any future occasion. On two occasions at intervals of five days gas and oxygen were given after a preliminary injection of morphine and atropine; the resulting anæsthesia was very short, but there were no disturbing symptoms at the time and no bad after-effects. Four months later there were still 12 teeth left, and the patient was anxious to have them all out at once. A preliminary injection of morphine and atropine was given, and anæsthesia was induced by passing warmed oxygen through chloroform. The colour remained pink and the breathing was regular and quiet. In nine minutes the operation was commenced. After a few teeth had been extracted the pulse became weak, so I passed the oxygen through ether. Immediately the colour became dusky and the breathing ceased. Ether was switched off and the oxygen given by itself, and in a few seconds breathing was resumed and the colour returned to pink. The operation was finished under oxygen and chloroform. In a few hours the patient was perfectly well and seemed better than after any of the previous anæsthetics.

The chief point of interest in both these cases is the immediate effect of the slightest exhibition of ether. Both patients took the mixture of chloroform and oxygen perfectly well, but the substitution of ether at once caused embarrassment of the heart and breathing.

Dawson-place, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

Exhibition of Cases.

A MEETING of this section was held on May 18th, Dr. J. H. STOWERS, the President, being in the chair.

A warm tribute was paid by Sir MALCOLM MORRIS to the work of the late Dr. W. Allan Jamieson, of Edinburgh, while the loss to dermatology which his recent decease had caused was deplored.

The following cases were shown:—

Dr. GRAHAM LITTLE: 1. Parakeratosis Variegata in a girl aged 18. The disease commenced in 1908 as a sudden and acute eruption on the thighs, spreading within two years to the whole of the body. The patient was also subject to epileptic fits. So far treatment had been unavailing.—Both Sir MALCOLM MORRIS and Dr. J. J. PRINGLE were of the opinion that these cases never get well, but the PRESIDENT drew attention to the fact that X rays removed the itching in those cases in which pruritus was pronounced.——2. Lichen Scrofulosorum with Scrofulodermia in a girl aged 13. The patient had been treated with tuberculin for four years for a patch of scrofulodermia on the chin. The lichen scrofulosorum had appeared only recently and had become considerably fainter since the tuberculin had been stopped.—Dr. H. G. ADAMSON and Dr. J. H. SEQUEIRA both thought that the lichen scrofulosorum was due to the tuberculin, but as Dr. S. E. DORE pointed out it would be extremely difficult to prove that it was not a toxic manifestation arising from the scrofulodermia, since lichen scrofulosorum was frequently seen before the advent of tuberculin.

Dr. PRINGLE: 1. Mycosis Fungoides. The patient was a woman aged 43, and the disease was of six years' duration. The eruption began on the right thigh, simulating parapsoriasis, and in two or three years similar patches affected other parts of the body. On the patches over the scapular regions swellings with ulceration appeared, which improved under X rays. The spleen was not enlarged and there was no lymphadenitis ascertainable. The blood count showed some lymphocytosis and eosinophilia. The Wassermann reaction was positive on two occasions, but there was no history or evidence of syphilis. In view of the blood test the exhibitor intended to treat the case with galyl.—Dr. SEQUEIRA stated that he had noticed cases of mycosis fungoides in which syphilis could reasonably be excluded, the blood of which had given a positive Wassermann reaction.——2. Xerodermia Pigmentosa. This case had been shown at a previous meeting (March, 1914). At that time the patient had a tumour on the left cheek, which had since disappeared under radium. Radium had also produced a very beneficial effect upon some of the other nodular lesions.

Dr. DUDLEY CORBETT: 1. A Case for Diagnosis. The patient was a man who had recently had scrotum and inguinal lymphatic glands removed for carcinoma. One month after the operation a raised inflammatory eruption appeared first on one leg and then on the other. The eruption on the first leg affected had disappeared, leaving venous telangiectases in its place. Most of the members considered that the condition was an inflammatory lymphangitis.——2. Asphyxia Reticularis (Unna). The lesion commenced as a livedo a year ago on the left leg and three months later on the right leg. On the congested areas vesicles appeared, which in time gave place to lichen planus-like papules.—Some of the members thought it was a form of lichen planus, but the consensus of opinion was that the case was one of erythema ab igne.

Dr. G. PERNET: 1. Urticaria Pigmentosa. The patient was a boy aged 7 months, and the chief point of interest in the case was that the lesions were present at birth. 2. A case treated by intramine. A young woman had gummata on both legs, which had healed under two injections of intramine. No oxidising agent had been used afterwards.

SECTION OF OTOLOGY.

Epidiascope Demonstration.—Exhibition of Cases.

AN ordinary meeting of this section was held on May 19th, Dr. ALBERT GRAY (Glasgow), the President, being in the chair.

Dr. J. S. FRASER gave an epidiascope demonstration of a remarkable collection of slides illustrative of the following three conditions: (1) Congenital Syphilitic Disease of the Ear; (2) Secondary Otosclerosis (Ostitis Vasculosa) associated with chronic middle-ear suppuration; and (3) Para-, Peri-, and Endo-labyrinthitis. He contended that there was an analogy between the changes seen in labyrinthitis, paralabyrinthitis, and the changes seen in the ear in the case of congenital syphilis shown. These changes seemed to originate from the middle ear. His idea of the course of events in the case of syphilitic disease of the ear, in its late form, was the occurrence of otitis media. If the case did not run a favourable course the otitis was acute, and the infection spread into the bone of the labyrinth and capsule, and in that way the inner ear was affected. Sudden apoplectiform deafness could be accounted for by a sudden nipping of the ductus endolymphaticus and a raising of the tension. His specimen showed that the condition present was not a neuritis or meningitis in the internal meatus, but a process spreading from the middle ear, just as in chronic suppurative otitis media and in some cases of otosclerosis.—The PRESIDENT, discussing the contribution, said that some years ago he arrived clinically at the view that there was far more frequently an association between suppurative middle-ear disease and otosclerosis than was commonly supposed, but he had never been able to demonstrate it pathologically as Dr. Fraser had now done—he believed for the first time. One frequently saw great deafness in young people in whom all the symptoms pointed to otosclerosis, but in which the lesion was old bilateral dry middle-ear deafness.—Dr. P. WATSON-WILLIAMS said he had always been attracted by the suggestion now elaborated by Dr. Fraser as to otosclerosis being due, at least in some cases, to toxic absorption or to some inflammatory process. In some of these cases he had found a chronic or latent infection of the posterior ethmoidal cells or the sphenoidal sinus, which was evident only on careful investigation.—Dr. DUNDAS GRANT thought the question was a still larger one than that of otosclerosis depending upon the absorption of toxins. There might be a diversity of causes. At one time he thought it

was associated with chronic osteo-arthritis. He asked whether the softening of bone in this condition was great enough to permit of it yielding to the pressure of the Politzer bag applied at the external meatus.—Dr. DAN MCKENZIE said it had often seemed to him that the secretory changes occurring in otosclerosis might not be due so much to a common origin with the otosclerot c changes in the labyrinth capsule, as a secondary effect of abolition of function. He believed secretory changes of that description did occur reflexly at times.

Mr. SYDNEY SCOTT showed a case of Latent Tuberculosis of the Lateral Sinus secondary to chronic suppurating otitis media, with a histological specimen of the sinus contents. At 5 years of age the child was operated upon by a simple procedure for the removal of a mastoid abscess. A sinus persisted, she had attacks of headache, and the tympanic membrane was obscured by pale granulations deep in the meatus. Schwartz's operation resulted in a cure, as there was now no sign of disease a year after the operation.

Mr. E. D. D. DAVIS described a fatal case of Double Acute Otitis Media complicated by ulcerative endocarditis. The patient, a youth aged 16, had discharge from both ears following upon influenza. There were numerous indications in the mastoid and body generally of a septic condition, and operation failed to save him.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

Cerebro-spinal Fever in a Military Camp.—London Bills of Mortality.

A MEETING of this section was held on April 14th, Dr. W. A. WINTER, the President, being in the chair.

Dr. G. E. NESBITT read a note on the distribution of cerebro-spinal fever in a military camp. The camp consisted of newly constructed huts and was designed to accommodate about 3000 men. A careful examination of the data did not suggest direct infection as a causation factor.

Dr. T. P. C. KIRKPATRICK exhibited two old London Bills of Mortality for the years 1685 and 1686.

SECTION OF PATHOLOGY.

China Green for Isolation of Typhoid Bacilli from the Fæces.—Exhibition of Specimens.

A MEETING of this section was held on March 31st, Professor E. J. MCWEENEY, the President, being in the chair.

The PRESIDENT made some remarks on the Value of China Green for the Isolation of Typhoid Bacilli from the Fæces. He had not yet succeeded in obtaining perfectly satisfactory results either in plates or as an enrichment method, but he thought the outlook sufficiently favourable to justify him in continuing his work on the subject.

Dr. R. J. ROWLETTE and Dr. W. BOXWELL showed the Abdominal Viscera from a woman aged 62. She had noticed her abdomen enlarging for three months, but had no pain or wasting; for three weeks prior to her death she had vomiting and diarrhœa. The examination showed the omentum to be completely infiltrated by a tumour mass, which also involved the mesentery and the peritoneum covering the right half of the diaphragm; there were small implantations elsewhere on the parietal peritoneum. No primary seat of carcinoma could be discovered. Microscopically the tumour was found to consist of large flat cells, varying greatly in appearance. Some appeared to be actively phagocytic; in many the nucleus was in process of division; no mitotic figures were seen. There were many giant cells similar to those seen in giant-cell sarcoma, and also many multinuclear protoplasmic masses resembling syncytial masses. Cell-inclusions were present. The stroma was scanty; lymph spaces were well marked. Much of the tissue of the tumour was necrotic. The exhibitors regarded the tumour as an endothelioma originating in the peritoneum.

Dr. J. H. POLLOCK showed, amongst others, a specimen of Congenital Syphilitic Cirrhosis obtained from an infant 11 months old, who succumbed to an apparently primary hepatitis

Dr. G. E. NESBITT showed the kidneys and portion of small intestine from a fatal case of acute abdominal disease in a girl with puzzling clinical symptoms.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held on May 16th, Dr. J. L. Bunch, the President, being in the chair.—Mr. Christopher Kempster brought forward the following case for consultation. A soldier, aged 36, first came out in a flush rash while in South Africa 16 years ago: this was accompanied with sickness and vomiting lasting from three to four hours, and causing prostration. He was better in three or four days, and then started peeling around the ears and neck. The peeling finally became general, scales coming away in large flakes. He had a second attack six years later, and since then a yearly attack, generally in the spring or autumn. The present attack began on May 5th, and on admission to the hospital he was peeling; his temperature was then 99·6° F., and had been normal since. He had been treated for many diseases, such as, amongst them, scarlet fever, nettle-rash, German measles, and quinine rash. —In the discussion which followed Dr. Morgan Dockrell suggested that the case was one of erythema scarlatiniforme. —Cases were shown by the President, Dr. Morgan Dockrell, Captain W. Griffith, Dr. W. Knowsley Sibley, and Captain C. H. Mills.—Colonel Harrison, R.A.M.C., referred to the treatment of syphilis with intramine and ferrivine, and said that in his experience intramine was only a source of torture to the patient, and even if followed by injections of ferrivine the results were absolutely nil.—The President then read a paper entitled "Dermatitis due to Hair Dyes," and an interesting discussion followed.

Reviews and Notices of Books.

Diseases of the Nose and Throat, comprising Affections of the Trachea and Œsophagus.

By Sir STCLAIR THOMSON, M.D. Lond., F.R.C.P. Lond. Second edition. With 22 plates and 337 figures in the text. London: Cassell and Co., Limited. 1916. Pp. 858. Price 25*s.* net.

ALTHOUGH only four years have elapsed since we noticed in these columns Sir StClair Thomson's text-book on "Diseases of the Nose and Throat," a new edition has been called for. During that short time there has been a steady progress of laryngology and rhinology. Amongst the features of the new edition will be found a description of suspension laryngoscopy—the latest development in the methods of direct inspection of the larynx. A concise description has been given of intranasal dacryocystostomy, an operation which promises cure or relief in many troublesome conditions of the lacrymal apparatus. The nasal route to pituitary tumours is also described. The technique of nerve blocking to obtain laryngeal anæsthesia, the intranasal operation to secure drainage of the frontal sinus, and aspergillosis of the accessory sinuses have all received more adequate attention. The chapter on removal of the tonsils has been entirely rewritten. The *pro et contra* of the tonsillotomy of former days and the tonsillectomy of to-day will be found tabulated, and the modern methods of removal as fully described as is possible in a text-book.

Although the book has been rigorously revised from beginning to end and expanded by some 70 pages and additional illustrations, yet the original character of the work has not been altered, nor has the high opinion we expressed when reviewing[1] the first edition. The book is well illustrated and fully indexed. To the senior student it will be a reliable guide and to the busy practitioner a complete and ready source of reference.

A Text-Book of Operative Dentistry.

By Various Authors. Edited by C. N. JOHNSON. Third edition, revised and enlarged. With 805 illustrations. London: William Heinemann (Rebman Limited). 1916. Pp. 891. Price 25*s.* net.

WE have previously had occasion to comment favourably upon this well-known work on operative dentistry. The editor has had the good fortune to be assisted by men who are thoroughly acquainted with their special subjects. In this

[1] THE LANCET, Dec. 2nd, 1911, p. 1560.

edition we meet with two new chapters, the one on the treatment of impacted lower third molars and the other on the application of the Roentgen ray to dentistry. The chapter on the impacted third molar, contributed by Dr. C. Edmund Kells, contains in full detail the technique he advocates in the removal of these difficult teeth and is well illustrated. It is satisfactory to note that he strongly recommmends the taking of skiagrams in all cases of this character. If this rule were observed in practice many failures to remove these teeth would be avoided and patients often saved an unnecessary amount of suffering. Dr. Kells is also the author of the chapter on the Roentgen ray in dentistry, and here again we have a thoroughly practical account of technique. The editor is responsible for a short but excellent chapter on dental caries, in which he lays great stress on the relation of diet to caries, a relation which is of great importance, and the recognition of which is largely due to Dr. Sim Wallace. The chapter on orthodontics, contributed by Dr. H. A. Pullen, contains a clear presentation of the methods adopted by those who support in all cases the restoration of the teeth to the normal occlusion. Altogether, the volume in its new form well maintains its reputation.

LIBRARY TABLE.

A Practical Guide to the Inspection of Meat and Foods. By A. E. BONHAM. Exeter: William Pollard and Co. 1915. Pp. 120.—The author of this book is the chief sanitary inspector and superintendent of the public abattoirs at Exeter and has also held similar posts in sanitary service at King's Norton, Birmingham, and Norwich. His experience is therefore a wide one, and his book bears evidence of a thorough practical knowledge of the subjects with which he deals, being written, moreover, as a note rather than as a literary manual. But if often the notes are somewhat abruptly written, the instructions given are just what are wanted, and those who are preparing to take up the work of meat and food inspection, as well as those already engaged in such very important work, will find the information very serviceable. The ground covered seems to be complete, and the administrative laws concerning the inspection of meat and food are wisely included in the text.

Poland as an Independent Economic Unit. By STANISLAW POSNER. With an introduction by SIDNEY WEBB. Published by Allen and Unwin for the Polish Information Committee, St. Martin's Lane, London, W C. Price 6*d*.—The central idea of this "impressive account of the material resources of Poland," as Mr. Sidney Webb calls it, is that there is a natural necessity for the unity of Poland. The partition of Poland was a crime against the people of Poland, but according to Mr. Posner it was equally a crime against the laws of nature, of geology and of geography; this, he states, being the reason why the Polish question has remained unsolved for 150 years. The pamphlet is a plea that the three divisions of Poland should be united once more and the Polish State re-created.

Back to the World. By MARY WALL. London: Chapman and Hall. 1916. Pp. 328. Price 6*s*. net.—The story opens with an admirable situation, one that, on the whole, has been too much for the author. A young wife manifesting weakness of intellect shortly after the age of 20, is taken to an asylum at the age of 24, and is not released for 25 years, when she returns to her husband at the age of 49, and on the eve of the war. The following is a footnote of her case as the author thinks that it would have appeared in our columns. "No. 5932, *Quicklime on Mind*. K. M. Young married woman, aged 23 Treated for Puerperal Mania—unaccountably seized with Acute Mania on her twenty-fourth birthday, passed through normal phases of the malady, but instead of recovering on being worn out and dying of cerebral exhaustion, settled into hopeless insanity. Health normal. But has now been insane for more than 20 years." It would be unfair to tell the plot of a carefully constructed narrative, but we can recommend the book to our readers as interesting, though unequal.

The Night Cometh: A Novel. By PAUL BOURGET. London: Chatto and Windus. 1916. Pp. 247. Price 6*s*. net.—This is a translation by G. Frederic Lees of "Le Sens de la Mort," a novel by Paul Bourget, which was issued last year. The book sets out the problems which suggest themselves to all thinking persons in respect of life after death, but does not deal with them in a particularly satisfactory manner. Certain war scenes are written with Paul Bourget's well-known skill, but on the whole the terror of the situation which he describes will not be realised by the reader.

Vive La France. By E. ALEXANDER POWELL. London: William Heinemann. Pp. 253. Price 3*s*. 6*d*. net.—This is a fine tribute to the patriotism and fighting spirit of our allies. The author has been on the field with the French and describes the struggles in Alsace and the Vosges, in Champagne and on the British lines. The book is simply written and well illustrated. There is little in it that will be new to those who have read regularly the literature of the war, but the facts are put together in a vivid manner and the illustrations are properly explanatory of the text.

JOURNALS.

Lyon Chirurgical. Vol. XII., Nos. 3–6.—One of the points which surgeons have had to revise and alter during the present war has been the treatment of gunshot wounds of the abdomen. At the outset of the war surgeons had a preconceived notion that abdominal injuries were best left alone without operation. Experience gained in the South African War had shown that a patient generally recovered from a wound of the abdomen if he were allowed to rest without the administration of food, the bullet appearing to do little more harm to hollow viscera than making a small hole which soon became glued over with lymph. But in the present war it was soon evident that such happy results were not obtainable, and the reasons are not far to seek. In South Africa almost all abdominal injuries were the result of long-range rifle fire, in which the wounds of entry and exit were not large. The ground was as a rule dry and sandy, and the patient could be picked up and attended to with promptitude and without much trouble. In the present war conditions are very different. The larger proportion of injuries are from shrapnel or portions of shell, which cause multiple and extensive wounds and are rapidly fatal. Bullets are received at comparatively short range, and though the entry wound may be quite small the passage through the abdominal viscera may cause extensive laceration of the intestine, liver, spleen, omentum, or mesentery, resulting in hæmorrhage or peritonitis. Again, owing to the nature of the warfare, injured men cannot be got out of the trenches for many hours after the infliction of the wound, and during that time have to lie in muddy trenches, in soil that has been highly cultivated and manured for centuries, and the clothes through which the bullet has passed are covered with mud. Little wonder is it, then, that the percentage of recovery from abdominal wounds is small, so small, in fact, that the chance of recovery from the wound of a bullet that has actually passed through the abdominal cavity and not merely punctured the abdominal wall is practically nil. In the recent numbers of the *Lyon Chirurgical* a considerable amount of attention has been paid to the question of the advisability of submitting such men to operation with a view of reducing the mortality. There appear to be among the French two schools termed respectively "abstentionistes" and "laparotomistes." On the whole, those who advocate laparotomy seem to have the most satisfactory results. From their accounts it would seem that wounds of the small intestine are by far the most fatal, few surviving operation, but practically none if left alone, which fact tallies very closely with the results of civil practice. It is pointed out very clearly that the possibility of submitting all patients to operation within a reasonable period depends very much on the character of the fighting and the practicability of evacuating the wounded rapidly from the firing line to a place where an established hospital with all the facilities of an efficient theatre can be maintained. In other words, the essential for this work is that the aseptic technique shall be carried out in all its details, and as efficiently as in civil hospitals. After reading the articles it seems clear that in the present stage of the war there are among the French a large number of hospitals close behind the firing line where any abdominal operation can be performed with as great a degree of safety as in any civil hospital, and that it is the opinion of many excellent surgeons that any wound of the abdomen which is not so serious as to be likely to be immediately fatal should be operated on and an attempt made to secure any bleeding point and suture any laceration of intestine. In this way it is considered that the terrible mortality from abdominal wounds may be lessened. In this connexion it is interesting

to turn to the official English "Memorandum on the Treatment of Injuries in War based on Experience of the Present Campaign." Here in the section "Wounds of the Abdomen as Seen at the Front," it is noted that the two chief complications of all abdominal wounds are (1) hæmorrhage and (2) perforation of hollow viscera; and there is no doubt that apart from shock due to extensive visceral lesions the first danger to the patient is hæmorrhage, and that this is a much more frequent cause of death than is peritonitis. It is stated that under the following conditions a primary operation may reasonably be performed: "(*a*) If a patient is seen within 12 to 24 hours from his injury and if his general condition is good; (*b*) if the wounds of entry and exit are near together so as to indicate that only a small part of the whole abdomen has been traversed; (*c*) if by protrusion of omentum or other evidence obtained on examination it is certain that the peritoneum is already opened; (*d*) if the patient is observed to become worse than a few hours previously; (*e*) if the conditions for doing an operation are satisfactory; (*f*) if a rise in the pulse-rate or increasing rigidity of the abdomen occur at a slightly later date provided that the patient is in good condition."

Journal of Cancer Research. Vol. I., No. 1, January, 1916. Cambridge University Press and Williams and Wilkins Co., Baltimore.—The appearance of a new journal devoted to cancer awakens reflections on the necessity for such a journal and its prospects of success. The arrangement followed in this country, and till recently in America, of publication in the existing journals, supplemented by the issue of special reports from the various laboratories, has worked well, and while wishing the new journal success one may be sceptical of the likelihood of such a steady output of first-class work on this subject, of all others, as would justify the new publication. But the first number is full of interest. Miss A. E. C. Lathrop and Professor Leo Loeb contribute, in continuation of their breeding experiments on mice, evidence that castration before the age of six months and consequent elimination of the ovarian internal secretion (corpus luteum) diminishes the incidence of cancer of the mamma. Castration after the age of six months has no effect. Prevention of breeding also diminishes the cancer incidence while raising the cancer age, though to a less degree than castration. This is the opposite of the effect of exclusion of sexual activity on mammary carcinoma in women brought out in the Registrar-General's report of last year. Dr. Stevenson's statistics showed a higher incidence of carcinoma of the mamma in the unmarried than in the married. Dr. F. L. Hoffmann analyses the cancer statistics of the countries in the Western Hemisphere. From the statistical data of very varying quality he draws the tentative conclusion that the cancer death-rate diminishes as we approach the equator. Professor F. C. Wood and E. H. Maclean report the negative results they have obtained in treating animals with transplanted and spontaneous tumours with phloridzin. Professor J. Ewing contributes a very sane but rather conservative review of present-day cancer problems. A clear and well-illustrated account is given by G. L. Rohdenburg and .F D. Bullock of two transplantable sarcomata arising in the walls of parasitic cysts of the rats' liver. The association of tænia cysts with tumour is regarded as evidence of the effect of chronic irritation in the etiology of malignant growths. The last paper in the *Journal* proper is by the editor, Dr. R. Weil, and deals with chemotherapeutic experiments on transplanted rat tumours. After detailing experiments which showed that *intra vitam* staining of living cells had not been obtained, whereas necrotic tissue stained deeply, the actual therapeutic experiments with aniline dyes are described; these were entirely negative. The remainder of the first number of the *Journal* is taken up with the proceedings of the American Association for Cancer Research. Interesting papers, followed by lively discussions, were read on primary liver tumours in mice (Slye, Holmes, and Wells), renal tumours in rabbits (E. T. Bell), tumours of the Japanese waltzing mouse and its hybrids (E. E. Tyzzer), and on cancer heredity (Miss M. Slye). Miss Slye's suggestions for genetic prophylaxis of cancer on the ground that cancer behaved as a recessive met with sharp criticism and elicited a spirited rejoinder. Several papers dealt with the Rous fowl sarcoma. There were papers on cancer immunity by Dr. Seelig and Dr. Fleisher and by Dr. Tyzzer, and on the action of radium by Dr. F. C. Wood and Dr. Weil.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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THE summer session of the Council came to an end on Saturday last, May 27th.

TUESDAY, MAY 23RD.

Registration of Saskatchewan Qualifications.

A report was presented by the Executive Committee in regard to the steps taken for the establishment of medical reciprocity with the Province of Saskatchewan. Inquiries were made in regard to the curriculum in that province, and information as to the adoption of the five-years course in 1915 having been received, the President, in virtue of the powers conferred upon him, directed the Acting Registrar, on April 5th, 1916, to register any person who produced the Licence of the College of Physicians and Surgeons of Saskatchewan, and who satisfied the prescribed conditions.

This report was recorded in the minutes of the Council.

The Apothecaries' Hall of Ireland.

The PRESIDENT, replying to a question put by Dr. MAGENNIS, stated that the Council was empowered by Sections 13 and 18 of the Medical Act, 1858, to incur the expense of sending an inspector to attend and be present on behalf of the Council at the professional examinations of the Apothecaries' Hall of Ireland.

Dr. MAGENNIS said that he saw by the minutes of 1903 that the President said in his address that the Council might perhaps think it no longer to be required that each examination of the Apothecaries' Hall should be inspected. The Hall had been inspected about 50 times in the last 15 years. The examinations of no other licensing body had been inspected during the last two years. Might he ask that the President should make a similar suggestion now to that made in 1903?

The PRESIDENT replied that in 1903 the Council deliberately by resolution placed it in the hands of the President to say when a visitor or inspector should attend the examinations. Two years ago the Council deliberately appointed another method, taking the matter out of the hands of the President. That being so, he would be very slow to suggest that the Council should reverse what it had done.

The Council adjourned.

WEDNESDAY, MAY 24TH.

Penal Cases.

The Council began the consideration of penal cases.

The first to be considered was the case (adjourned from Nov. 4th, 1915) of Herbert Midgley Reeve, M.R.C.S. Eng., L.R.C.P. Lond., M.B. Lond., of Southend-on-Sea, who had been summoned to appear before the Council on the following charge:—"That being a registered medical practitioner you knowingly enabled one Mary Ann Preece, whose name had been removed by the Central Midwives Board from the roll of midwives, to practise as a midwife in contravention of the provisions of the Midwives Act, 1902, as if the said Mary Ann Preece were duly certified under the said Act. And that in relation thereto you have been guilty of infamous conduct in a professional respect." The complainants were the Central Midwives Board.

At the conclusion of the proceedings in November the President announced the decision of the Council as follows:—

Mr. Herbert Midgley Reeve:—The facts alleged in the charge the Council has found to be proved. Your offence was committed notwithstanding the fact that you were in possession of the following warning notice on "covering.":—"Any registered practitioner who by his presence, countenance, advice, assistance, or co-operation, knowingly enables an unqualified or unregistered person, whether described as an assistant or otherwise, to attend, treat or perform any operation upon a patient in respect of any matter requiring professional discretion or skill ..... or otherwise to engage in professional practice as if the said person were duly qualified and registered, is liable on proof of the facts to have his name erased from the Register." The Council takes a very grave view of the action of a medical practitioner who thus "covers" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery or otherwise attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgment in your case till the next Session, in May, of which you will receive due notice. You will then be required to attend, and to produce testimony from your professional brethren as to your character and conduct in the interval.

Mr. H. M. Reeve attended and was accompanied by his solicitor, Mr. W. V. Reeve.

Mr. Julius Bertram, solicitor, represented the Central Midwives Board.

Mr. W. V. REEVE submitted various testimonials on behalf of Mr. H. M. Reeve as to the conduct of the latter in the

interval. These testimonials were from Mr. James B. Maxwell, Dr. John F. Walker, Dr. C. Grant Pugh, medical officer of health of the borough of Southend-on-Sea, and Councillor H. William Cooper, of the Borough Insurance Committee.

Mr. BERTRAM said that he thought he was justified in saying, on behalf of the Central Midwives Board, that they had heard with much gratification the evidence tendered on behalf of the practitioner, and they had nothing further to add.

Mr. W. V. REEVE addressed the Council. He said that it had not been suggested that there was anything in the nature of pre-arrangement between the practitioner and the nurse to contravene the Act. There were mitigating circumstances in the case. Taking into consideration the testimonials of his client's professional brethren, his hitherto untarnished record, and the long period which had elapsed since the occurrence of this case, he appealed to the Council that the judgment which they would pronounce would be such as to enable his client to carry on his practice as heretofore.

Mr. H. MIDGLEY REEVE expressed regret that this case should have occurred and assured the Council that such conduct would not happen again in his practice.

The PRESIDENT announced the decision of the Council as follows:—Mr. Reeve: I have already informed you on behalf of the Council of the grave view it takes of the nature of the offence, specified in the charge, which had been proved against you; but having regard to your assurances as to your conduct in the future, the Council has not seen fit to direct the Registrar to erase your name from the Medical Register.

The Council proceeded to consider the case of Frederick Robinson, L.R.C.P. Edin., of Masbro, Rotherham, who had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner you by your assistance knowingly enabled a Mrs. Fisher, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Mrs. Fisher in contravention of the said Act to practise as if she were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

The complainants were the Central Midwives Board, who were represented by Mr. Julius Bertram, solicitor.

Mr. Frederick Robinson did not attend, nor was he represented. A telegram was intimated from him stating that he would not be present.

Mr. BERTRAM addressed the Council on behalf of the complainants. He said that under the Midwives Act the only persons who were entitled to attend women in childbirth, habitually and for gain, were duly qualified medical practitioners and certified midwives. He wanted to make it clear that the Central Midwives Board had no desire or intention to interfere in any manner with the question of the discretion of every medical man to conduct his own practice in his own way. They were the complainants in this case only because of the participation by a medical man in what, as they thought, was really the practice of another person who was not entitled to carry on that work. The Council had put their views with regard to "covering" into a resolution warning medical men of the consequences. There were no doubt cases near the border line, but to comply with the Council's requirements the medical man must be in charge of the case and be primarily responsible. He must have had an intention to be free to attend the case. The woman who attended must, in the view of the medical man, be acting under his directions. He thought that the evidence would be sufficient to allow the Council to say that this was a case of "covering." He thought that all the witnesses whom he would call would say that there was no direct engagement. Only in one case did the practitioner pay more than a single visit. There were certain other things which Mr. Robinson did. He notified the birth to the medical officer under the Notification of Births Act. The actual delivery was conducted by the uncertified woman, but the medical man signed the certificate for the benefit under the Insurance Act.

Amongst the witnesses whom Mr. Bertram called were certain women who stated that Mrs. Fisher had attended them in their confinement. Several of them stated that Mr. Robinson had called next morning, but had not examined them.

Miss MARY STEWART, inspector of midwives and health visitor, Rotherham, said that the notifications of births in the confinement of certain of the previous witnesses were signed by Mr. Robinson.

Letters were read from Mr. Robinson denying the charge.

The PRESIDENT said: I have to announce that the Council have judged Frederick Robinson to have been guilty of infamous conduct in a professional respect, and have directed the Acting Registrar to erase from the Medical Register the name of Frederick Robinson.

The Council considered the case of Kenneth Ram Gujral Shaw, M.B., Ch.B. Edin., who had been summoned to appear before the Council on the following charge:—"That being a registered medical practitioner you were convicted of the following misdemeanour—viz., (1) On Sept. 17th, 1915, at the Thames police court, of being drunk and disorderly, in respect of which offence you were bound over in the sum of 60s. to be of good behaviour for six months. (2) On Sept. 21st, 1915, at the County of London Sessions, of exposing your person, in respect of which offence you were on Oct. 12th, 1915, bound over in the sum of £5 to appear for judgment if called upon within 12 months."

Mr. Shaw did not attend, nor was he represented.

Mr. HARPER (the solicitor to the Council) stated that notice of the inquiry had been sent to the practitioner at Messrs. Cook's by means of a registered letter. Messrs. Cook, following instructions, had on April 30th forwarded the letter to Shaw, c/o the Mediterranean Expeditionary Force, Egypt. The Director-General of the Army Medical Service had been written to respecting Shaw, and a reply had been received to the effect that Shaw had not been appointed to a commission in the Royal Army Medical Service, though it was stated that one answering his description had communicated with the War Office regarding such an appointment in 1913. A similar letter of inquiry addressed to the Admiralty had elicited the reply that no one answering the description given had applied for a commission as a surgeon in the Naval Service.

Two certified copies of the convictions were put in.

The PRESIDENT intimated the decision of the Council as follows: I have to announce that Mr. Kenneth Ram Gujral Shaw, having been proved to have been convicted of the misdemeanours alleged against him in the notice of inquiry, the Acting Registrar has been directed to erase his name from the Medical Register.

The Council then proceeded to the consideration of the case of Daniel Evans Powell, M.B., C.M.Glasg., of High-street, Tooting, who had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner you by your assistance knowingly enabled one Jenny Walter, a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended or to be attended by you or by her under your direction, thereby enabling the said Jenny Walter in contravention of the said Act to practise as if she were certified thereunder. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

The complainants were the Central Midwives Board, who were represented by Mr. Julius Bertram, solicitor.

Dr. Powell attended, and was accompanied by Mr. J. A. C. Keeves, counsel instructed by Messrs. Webster, Butcher, and Sons, solicitors.

The proceedings had not gone far when they were adjourned until the following day.

The Council adjourned.

THURSDAY, MAY 25TH.

Restoration to Register.

The PRESIDENT announced that the Acting Registrar had been directed to restore to the Medical Register the name of Mr. Casper Denis Downing.

Penal Cases.

The Council again considered penal cases.

The first to be considered was that of Henry William West, M.R.C.S. Eng., L.R.C.P. Lond., Old Basford, Notts, who had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner you were on Nov. 1st, 1915, convicted at the City of Nottingham assizes of feloniously killing and slaying one Harriet Ann Hodgkinson and sentenced to seven years' penal servitude."

Mr. HARPER, the solicitor to the Council, put in the certificate of conviction.

The PRESIDENT said, in announcing the decision of the Council: Mr. Harper, I have to announce to you that Henry William West has been proved to have been convicted of the felony alleged against him in the notice of inquiry, and that the Registrar has been directed to erase his name from the Medical Register.

The Council proceeded with the further hearing of the charge against Daniel Evans Powell, which was adjourned from the previous day.

Mr. BERTRAM, in opening the case, stated that a woman named Jenny Walter owned a maternity home at Tooting, to which a large number of married and unmarried women went for the purposes of their confinement. Proceedings were instituted against her at the instance of the London County Council for the contravention of certain sections of the Midwives Act. In these proceedings she alleged that she was acting in all the cases alleged against her under the directions of a qualified medical practitioner. Dr. Powell gave evidence in a manly way to support the contention of Mrs. Walter that she was acting in all the cases alleged against

her under the directions of a qualified medical practitioner. The evidence then disclosed that there was a verbal working arrangement between this woman and Dr. Powell by which when women were confined in this house they received medical attention, or at any rate inspection by him. It was alleged that at none of the cases referred to was Dr. Powell present at the actual delivery. In all cases he (Mr. Bertram) believed that the notification of birth was given by Dr. Powell. He, Mr. Bertram, had applied for the actual notifications, but the Wandsworth Public Health Committee had passed a resolution that these were not to be produced except under a subpœna.

Several women who were called as witnesses stated that Walter had attended them at their confinements. One of these who had seen Dr. Powell the next day stated that when she went to Nurse Walter the latter had said that the fee was inclusive for her own services and those of the doctor.

Dr. DANIEL EVANS POWELL made a statement in his own defence. Answering his solicitor, he said that in October, 1914, he had been called in to attend an urgent case at Nurse Walter's. As he was going away Walter asked him if he would attend some of the cases. He said that any difficult case he would be glad to attend, but he added that he would prefer them to go into the infirmary. He had attended a number of cases at this house and he was actually present at some of the cases at confinement.

Cross-examined, he said that when he made the arrangement it was his honest intention to be present to do the delivery.

Mr. BERTRAM: Did you ever give her any directions as to how to carry out the confinement?—Not as to the confinement but as to the care of the patient and child and as to nourishment to give.

If she could deliver the patient why should she send for you at all?—Because I had to give medical supervision to the case.

Mr. BODKIN (the Legal Assessor): Was it because she was an unregistered woman?

Dr. POWELL: That was the reason.

Mr. BUTCHER (solicitor for Dr. Powell), in addressing the Council, said that his client frankly expressed sorrow for the manner in which he had acted, which was due to inadvertence. He would never be a party to any indiscretion of the kind again.

The PRESIDENT in announcing the decision of the Council said: Mr. Powell, the Council has carefully considered the charge made against you, which in effect was that you had by your assistance knowingly enabled a woman not certified under the Midwives Act, 1902, to attend women in childbirth under cover or pretence that such women were attended, or to be attended by you, or by her under your direction, thereby enabling her to practise as if she were certified. The facts alleged against you in the charge the Council has found to be proved. The Council takes a very grave view, from the public point of view, of the danger which arises from medical practitioners lending their names for such a purpose and "covering" the practice of unqualified or uncertified women, under whatever pretext they practise midwifery or otherwise attend and treat women in labour. But in order to give you an opportunity of reconsidering your position in relation to this matter, the Council has postponed judgment in your case till the next session in November, of which you will receive due notice. You will then be required to attend and to produce testimony from your professional brethren as to your character and conduct in the interval.

FRIDAY, MAY 26TH.

On consideration of the case of James Andrew Baird Thompson, registered as of South Bermondsey, the following charge was dealt with: "That being a registered medical practitioner you abused your position by committing adultery with a Mrs. Grigson, whom and whose husband and child you had attended professionally, which adultery you were found to have committed by the verdict of a jury given at the trial of the case of Grigson *v.* Grigson and Thompson in the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice on Oct. 20th, 1915, and in which the decree was made absolute on May 8th, 1916. And that in relation thereto you have been guilty of infamous conduct in a professional respect."

Dr. THOMPSON called Mrs. Grigson as a witness, and he also denied that the professional relationship existed.

The PRESIDENT in intimating the decision of the Council said: Dr. Thompson, I have to inform you that the Council has judged you to have been guilty of infamous conduct in a professional respect, and has directed the Registrar to erase your name from the Medical Register.

The Council considered the case of William Joseph Ryan, L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S. Glasg., who had been summoned to appear before the Council on the following charge: "That being a registered medical practitioner you were convicted of the following misdemeanours—viz., (1) On Feb. 27th, 1914, at the Lambeth police court of being drunk and incapable, and fined 3*s.*; (2) on April 7th, 1915, at the Tower Bridge police court of being drunk and disorderly, and fined 5*s.* or five days; and (3) on Feb. 22nd, 1916, at the Bow-street police court of being drunk and incapable, and fined 10*s.*

Mr. Ryan did not attend nor was he represented.

The PRESIDENT intimated the decision of the Council as follows: I have to announce that William Joseph Ryan having been proved to have been convicted of the misdemeanours alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register.

The Council considered the case against William Bonallo. The Dental Committee reported that the said William Bonallo was registered in the Dentists Register on Dec. 31st, 1878, as "in practice on July 22nd, 1878," and his address in the Register for the current year was Cramlington Hall, Cramlington, Northumberland.

The Committee found that it was established by the evidence: "That on Nov. 2nd, 1915, the said William Bonallo was convicted at the Northumberland assizes of feloniously using a certain instrument with intent to procure miscarriage, and was sentenced to three years' penal servitude."

Mr. Bonallo did not attend nor was he represented.

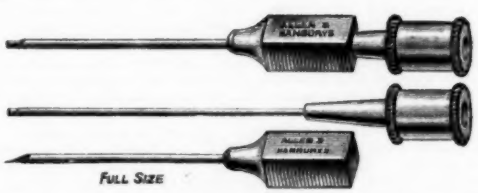
The PRESIDENT intimated the decision of the Council as follows: I have to announce that William Bonallo having been proved to have been guilty of the felony alleged against him in the notice of inquiry, the Council has directed the Registrar to erase his name from the Dentists Register.

The Council adjourned until the following day.

New Inventions.

A NEEDLE AND CANNULA FOR INTRAVENOUS INJECTION.

FOR some months past I have been meeting with patients who, immediately after an intravenous injection of a concentrated solution of galyl or kindred drug, have been affected with bad arms, some with a general inflammation extending from the needle puncture, some with small abscesses, and two with sloughs, one 2½ inches in diameter. The history in each case has been the same—namely, that pain started during the injection. One case, a small slough, occurred after an injection by myself, and was due to a slight leakage of the drug outside the vein during the injection, caused by a movement of the needle. I am certain that all the other cases were caused in a somewhat similar



manner, the leakage being due to a double puncture of the vein by the needle, made either when introducing it, or as the result of movement by the patient or of the syringe. To prevent this double puncture I have devised a neat needle and cannula (see figure) after the pattern of the needle and cannula of Mr. Barker's spinal analgesia syringe, but finer and much shorter. The cannula should be used to draw up the solution into the syringe, and then, after plunging the needle into the vein, the cannula attached to the syringe is pushed along the needle as far as it will go, and the injection given. As the cannula projects beyond the point of the needle the whole can be moved about in the vein without any fear of perforating it. In fact, it is a good plan before injecting to push the needle and cannula farther along the vein, to make sure that it is free and to get beyond any second puncture that may have been made when introducing the needle.

Messrs. Allen and Hanburys, Wigmore-street, London, W., are the manufacturers.

Wolverhampton. W. F. CHOLMELEY, F.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, JUNE 3, 1916.

Medical Practitioners and the Military Service Acts.

THE Central Medical War Committee, the Committee of Reference formed by the Royal College of Physicians of London and the Royal College of Surgeons of England to deal with special cases, and the Scottish Medical Service Emergency Committee, are now recognised in the Regulations made under the Military Service Acts as the Professional Committees for all medical men who come within the provisions of the Acts. The effect of this recognition, which was announced last week in THE LANCET, is that every medical man, married or single, under the age of 41 next birthday, and consequently liable for service in the army, will come under the purview of one or other of these three committees on the question whether it is his duty to take a commission in the R.A.M.C. or to continue as a civilian practitioner. Practitioners of military age in England and Wales may be divided into those who are enrolled and those who are not enrolled under the scheme of the Central Medical War Committee, a body whose activities have resulted in the enrolled being the larger class. A medical man under 41, who is enrolled, will not be called up for service with his class by the recruiting authorities, but while pursuing his civil avocations he will be liable to be called upon to take a commission in the R.A.M.C. if and when the Central Medical War Committee decide that it is his duty to do so. If he should receive a notice from the recruiting authorities calling him up, the production of his certificate of enrolment restores him at once to his proper position in accordance with a definite Army Council Instruction. In Scotland the same procedure applies with regard to those who are registered with the Scottish Medical Service Emergency Committee.

But a modification in the position of the enrolled man under 41 has resulted from the passing of the new Military Service Act. Hitherto medical men who have taken service since the beginning of the war as doctors in the army have done so on the system of a contract for one year or until their services are no longer required, whichever happens first. It is now announced authoritatively that every medical man under 41 is, in virtue of the new Acts, under an obligation to serve not only for 12 consecutive months, but for further periods if needed, with such intervals as may be determined, if the military authorities (acting on the advice of the Professional Committees) require him to do so. In view of the obligation on all other classes of the community to serve for the duration of the war, the medical profession is not in a position to object to this new condition. While service with the forces remained voluntary, the Central Medical War Committee was fully aware that a medical man by enrolling undertook no more than an obligation for one year of service, even while contemplating the possibility that the prolonged duration of the war might necessitate a further call. So men who have completed their period of service are invited to re-enrol, thus placing themselves again under the Professional Committees to determine whether and when their services will be again required. In the new conditions every medical man under 41, whether he enrols or not, will be under the enhanced obligation, to be fulfilled by him if and when the military authorities offer him a commission on the advice of the Professional Committee concerned. A given doctor, however, will, we hope, not be selected for a second period of service under the enrolment scheme until other men, equally eligible in other respects, have been taken for service; this would seem to make it unlikely that an enrolled man would need to be called upon without a substantial interval between any two periods of service. Of course, any doctor who prefers his service to be continuous may re-engage at the end of his first year.

In our opinion in each of the cases here under consideration the medical man should enrol under the new conditions—namely, with an obligation not limited to one period of service of 12 months, but extended to such further period or periods as may be found necessary; he must trust the War Office in making its call to give full value to the advice of the Professional Committees. By so doing he will be helping to retain for the medical profession its privilege that the doctor can always fulfil his obligation for military service, not in the ranks, but by becoming a commissioned officer. For if he is enrolled he will not be called up by the recruiting authorities for military service under the compulsory provisions of the Military Service Acts. He will be liable to 12 months' consecutive service, but his obligation to serve (qualified in these ways) will be exacted from him only if and when it is deemed right by a committee established for the purpose by his own profession. All medical men under 41 who do not enrol under the new conditions will be called up by the military authorities in their classes. If they do not desire to be taken for general service, it will be necessary for them to appeal to a local tribunal for exemption. Under the section of the new Military Service Act which deals with medical men, the local tribunal will refer the case to one of the Professional Committees, when the case will be considered, and a recommendation made to the local tribunals which will be binding on them. It will be seen, therefore, that whether a man is enrolled or not, his case will be decided by the same Professional Committees. The enrolled man saves the time of himself and of the tribunal by enrolling, the unenrolled will go through certain formalities only to arrive at the same place. Throughout these remarks the case of conscientious objectors has not been alluded to; with them the Professional Committees do not deal.

Preventive Medicine and American Research.

REPRESENTATIVES from the Medical Departments of the United States Army and Navy are at the present time in this country for the purpose of studying the organisation of our medical services in connexion with the war. We take this opportunity of offering our American brethren, in the name of the medical profession at home, a hearty welcome to our shores. We hope they will find much to interest them in our methods, and we trust that some of the information they collect will prove of use to them when they have recrossed the Atlantic.

It is perhaps not sufficiently remembered by us how deeply the world is indebted to American investigators in the field of preventive medicine. American researches have thrown a bright light upon difficult problems concerning what we call tropical disease. Yellow fever may be instanced in this connexion. It was in 1900 that the United States Government appointed a Commission to proceed to Havana, under the leadership of Major WALTER REED, of the Medical Corps, with whom were associated Assistant Surgeons JAMES CARROL, JESSE W. LAZEAR, and A. AGRAMONTE, to investigate the etiology of this disease. They succeeded in demonstrating among other things that it was spread by the bites of infected stegomyia mosquitoes and in no other way, and REED'S experiments remain as models of scientific research, both for the exactitude with which they were adapted to the points to be proved and for the precautions taken to exclude all sources of error. To their everlasting credit the American soldiers offered themselves fearlessly as subjects for experiment; some of them after being bitten by infected mosquitoes contracted the disease, among them being CARROL and LAZEAR, the latter of whom died a martyr to science. Based upon these experiments preventive measures, including mosquito destruction, were formulated at Havana, which for 150 years or more had been a veritable hot-bed of yellow fever, but from which since 1901 the disease has completely disappeared, save for a few occasional imported instances. The same methods have been employed more recently in other endemic areas of the disease such as Rio de Janeiro, Para, Manaos, and elsewhere, from which yellow fever has now also vanished. Another great victory was achieved, and an object lesson given to all tropical countries, in the Panama Canal Zone, where yellow fever, malaria, and other insect-borne diseases had in the past ravaged the population year by year. The Americans began to construct the Isthmian Canal in 1904, and Colonel (now Surgeon-General) GORGAS, who had formerly served as chief sanitary officer at Havana when Reed's Commission had made their experiments, was appointed chief of the new sanitary department. In view of the previous disastrous experiences in this region it is safe to say that without the labours of this sanitary department the Panama Canal would never have been completed. Through the well-directed measures of Colonel GORGAS and his staff yellow fever, malaria, blackwater fever, dysentery, and other diseases were brought entirely under control, and the general death-rate among the labourers, which was 52·45 per 1000 in 1904 fell to 20·49 in 1912. Briefly, what was once an intensely unhealthy area became salubrious, and the doctrines of MANSON and ROSS were triumphantly established. The work at Panama, like that at Havana, is always alluded to by writers on germane subjects, but its detailed history would repay more attention than it has received, while there are other valuable American contributions to preventive medicine which are frequently passed over. The investigation of that mysterious disease pellagra has been very carefully prosecuted in the United States in recent years, by the McFadden Thompson Commission of New York and other workers, and already with encouraging results. A great decrease has recently taken place in America and other parts of the world, including Egypt, in the incidence of ankylostomiasis or hookworm disease, due partly to the efforts of ASHFORD and others with the assistance of the American International Commission, an offshoot of the Rockefeller Foundation. The etiology of exanthematic typhus was independently worked out by two groups of American investigators, ANDERSON and GOLDBERGEN, and RICKETTS and WILDER; it was only an unlucky chance which prevented the earlier publication of their results before those of M. NICOLLE and his collaborators in Tunis had been made public their incrimination of the body louse as the insect transmitter of this disease. The credit therefore of the discovery must be shared by the Americans. Much new light has been thrown upon cerebro-spinal fever and epidemic poliomyelitis by American workers, and American military and other medical officers stationed in the Philippines have contributed greatly to the general fund of knowledge of tropical diseases, particularly as regards beri-beri. Nor do these examples exhaust the list, but they will suffice to show some at least of our indebtedness in preventive medicine to scientific workers in America.

Our American visitors will doubtless find a good deal that is new to them in our arrangements for the care of the sick and wounded, for the prevention of disease among our troops at home and in the field, and for maintaining in other ways the health and efficiency of the British army. It may be mentioned in this connexion that although anti-typhoid inoculation originated in England, the adoption of the procedure in America helped largely to confirm its value and assisted in gaining its acceptance by our own military authorities. We understand that only one officer of the British army has died from typhoid fever since the commencement of the war, and we believe that at the present moment there are not more than two dozen typhoid cases among our troops. This remarkable freedom of an immense army in the field from what has been generally deemed a necessary curse is greatly due to the systematic adoption by the authorities in the United States of WRIGHT'S work.

Annotations.

"Ne quid nimis."

THE NUMBER OF MEDICAL STUDENTS.

THE following is an official return, received from the General Medical Council, of medical students in actual attendance, during May, 1916, on courses of professional instruction at medical schools and approved teaching institutions:—

—	Men.	Women.	Total.	Men under 18.	Men from outside the United Kingdom.
First year ...	1422	636	2058	489	102
Second year ...	783	295	1078	26	129
Third year ...	519	163	682	0	146
Fourth year ...	1078	145	1223	0	186
Final year ...	922	140	1062	0	115

(1905)

A note to the return, which is signed by Sir Donald MacAlister, President of the General Medical Council, adds that a number of third-year students who passed a professional examination at the end of the winter session have been transferred to the fourth-year class by direction of the military authorities.

THE TRAFFIC IN NARCOTIC DRUGS.

THE Order of the Army Council which we recorded last week restricting the sale of narcotic drugs to soldiers is of special importance, since it introduces into medical and pharmaceutical practice an entirely new principle so far as this country is concerned, placing on the liberty of the subject a restriction of a nature that is novel to our poison legislation. In practically every other civilised country but our own the distribution of narcotic drugs is limited by law to cases of legitimate medical necessity, and the conditions which the new Order now makes applicable to our army have long been enforced on the whole of their populations. It would be a good thing if public opinion could be directed in this country towards the creation of a popular demand that a measure now applied to one section of the community should, through an emergency Act of Parliament, be made applicable to all sections. If, while the public is in the mood for the enforcement of salutary restrictions on liberty, the provisions of this new Order were extended to the whole population, there are strong reasons to believe that we should never revert to our present slipshod methods of dealing with the distribution of poisons. If we wait until the war is over we shall find ourselves confronted with all those pettifogging controversies and the clamouring of vested interests which always put a brake on progress. Under present conditions such drugs as barbitone, sulphonal, and trional are almost as easy to purchase as chocolates, and so long as the druggist labels them in accordance with the law he can spend the whole of the day handing bottles of these hypnotic drugs to any customer who cares to ask for them. Even cocaine and morphine can be purchased by almost anyone; for who is there who cannot obtain an introduction to some pharmaceutical chemist and so put himself and the purveyor on the right side of the present futile law? This question implies no misconduct on the part of pharmaceutical chemists, and, indeed, it would be surprising and disappointing to find that they as a class would not welcome such an alteration in the law as would place them beyond the unwelcome importunities of their customers. The provision of the Order which requires medical practitioners who prescribe any of the scheduled drugs for soldiers to sign the prescription with their full name and address and to write on it the words "Not to be repeated" has long been advocated to apply to all prescriptions for such drugs as cocaine and morphine. It is commonly acknowledged that the drug habit is sometimes acquired through the repeated use of prescriptions which the prescriber intended to be used only a limited number of times. Compliance with this provision of the Order will initiate a salutary habit which many practitioners will no doubt continue when the Order which enforced it has become a thing of the past, even though the principle may not be embodied in permanent legislation.

OBLITERATIVE ARTERITIS AND LEAD POISONING.

THE etiology of obliterative arteritis is somewhat obscure. In the *Boston Medical and Surgical Journal* of April 13th Dr. W. Timme has reported a case the interest of which lies in the fact that lead poisoning appears to have been the cause. A painter, aged 36 years, was admitted into hospital on Dec. 21st, 1915. During the last year he had a typical blue line on the gums, which responded to local treatment by a dentist. He had no palsies, but he complained of pain along the sciatic nerves and in some joints. In 1913 pain in the left leg began after walking and ceased on resting, to begin again on walking. This intermittent claudication became gradually worse, so that only short distances could be walked without resting. In February, 1915, he could no longer walk. The left leg became heavy and helpless and cold and the seat of extreme pain and tenderness. The calf became smaller and flabby. He was treated with electricity and potassium iodide, but grew steadily worse. Hot packs, massage, rest, and exposure to the sun were then tried and he improved. A few ulcers developed on the outer side of the foot and spread rapidly. They were treated with the therapeutic lamp and they healed. In October the ulcers re-formed and necrotic areas developed at their site. Three weeks before admission to hospital the little toe was removed, but the sloughing continued. On examination the patient was found to be a frail, anæmic, ill-nourished man. The tongue was coated and there was a suggestion of a blue line on the gums. The muscles of the left thigh and leg were markedly atrophied. No pulsation could be felt in the dorsalis pedis or any other artery of the left lower limb up to and including Poupart's ligament. The urine contained traces of lead. The fundi were normal. The Wassermann reaction was negative. Nothing is said about the treatment of the case, Dr. Timme remarking: "No adequate therapy has yet been devised." In this country Dr. F. Parkes Weber has pointed out the comparative frequency of arteritis obliterans among male Jews in the East End of London who are in the habit of smoking a large number of cigarettes. He suggests that unwholesome food and racial factors play a part in the etiology. Other causes suggested are syphilis and arteriosclerosis. Kolisko has stated that he has seen

obliterative arteritis frequently in chronic lead poisoning. This view is borne out by an American writer, Victor C. Vaughan, who, in an article on mineral poisons, declares that the changes in the vessels in lead intoxication are those of arteritis obliterans. Arteriosclerosis, of course, is a well-recognised result of this poison.

THE DEFINITION OF PORT WINE.

THE decision of the Government to restrict the word "port" to that wine certified by the Portuguese Government to be the genuine product of the Douro region, and exported from Oporto, is a curious issue of the war. It has followed upon a statement made by the Portuguese Government that unless this definition was accepted they would not ratify the Commercial Treaty signed at Lisbon in August, 1914, under which both countries secured commercial advantages. It does not appear to be generally remembered that already some restriction as to the use of the word "port" is in force, although the definition did not go quite so far as the recent proposal. As was pointed out in a report on port wine published in THE LANCET in 1907, a general order of the British Customs requires the use of the word "port" to be confined to Portuguese wines, the designation to be accompanied by a declaration of the country of origin. The new restriction goes farther than this, as it excludes Portuguese wines produced outside the Douro district. Wines resembling to an extent the composition and character of genuine port wines are, of course, produced in other countries. But the designation must be qualified by the name of the country of their origin. Such are Spanish "port" or Tarragona, Cape "port," Canary "port," Cyprus "port," Palestine "port," Australian "port," Californian "port," Algerian "port," and so forth. Apart from considerations of commerce, the new measure is a good one. By a proper extension of accurate definition it encourages the principle of honest trading.

DISEASES OF ANIMALS ACTS.

THE report for the year 1915 of the proceedings under the Diseases of Animals Acts and the Markets and Fairs (Weighing of Cattle) Acts[1] is somewhat shorter than in previous years, this being partly because the Tuberculosis Order of 1914 remains in abeyance. Of foot-and-mouth disease there were 56 outbreaks as compared with 27 in 1914, and with the exception of one isolated case, all the disease was confined to the counties of Somerset and Wilts. Anthrax shows a decline of 147 cases and glanders of 48 from the figures of the previous year, but this latter figure does not include army horses, among which it is understood there have been several cases. To trace the origin of the outbreaks of foot-and-mouth disease has been as difficult as ever. A possible source lies in the returning soldiers from France where the disease was prevalent near the British lines. The infection of pigs at Butleigh was ascribed to contaminated whey with which they had been fed. The movement of dogs and poultry was restricted in this outbreak. In checking the spread of the disease acknowledgment is made of help given by the North Somersetshire Yeomanry. Adequate civilian labour was impossible to secure, while the staff of inspectors and veterinary inspectors had already been depleted. The value of quarantining imported dogs is emphasised by the discovery in March of rabies in a dog undergoing detention. Swine fever has been treated by the use of serum, and on the whole this treatment has been very favourably received by pig-owners. Treatment was accepted and carried out in 390 outbreaks. The trade in foreign animals practically ceased in 1914, but special provision for a speedy revival of foreign trade has been made in case a scarcity in the meat-supply should cause any serious rise in prices. Accommodation for Canadian animals has been arranged at Birkenhead, and for animals from other foreign sources at Avonmouth and Cardiff.

[1] Annual Report of Proceedings under the Diseases of Animals Acts and the Markets and Fairs (Weighing of Cattle) Acts for the Year 1915. Darling and Son, Limited, Bacon-street, London, E. Price 3d.

THE "TABARD-STREET AREA."

IT is a matter for congratulation that the "Tabard-street area," notorious for its insanitary conditions, is doomed. From a report of the Housing of the Working Classes Committee to the London County Council, dated May 10th, we learn that compensation has now been finally assessed in all the disputed claims in respect of property required for the Tabard-street, Grotto-place, and Crosby-row scheme, and that terms of purchase have been arranged in all the remaining cases. The total expenditure on the purchase of the property will probably fall short of the original estimate made in 1910 by as much as £200,000, the reduced estimate now standing at £273,300. The reduction is partly due to depreciation of property in the area and partly to successful arbitration in connexion with claims for trade interests. We trust that the picturesque names will remain and the new Grotto-place be cool and salubrious in the hottest weather.

THE EXTINGUISHING OF FIRES CAUSED BY BOMBS.

A USEFUL report has been issued by a Committee appointed by the Home Secretary in March last, who were asked to conduct experiments to test the value of dry powder fire-extinguishers as compared with water and other "first-aid" appliances for extinguishing or effectively controlling fires such as are likely to be caused by bombs. The tests were carried out on April 3rd at the London Fire Brigade headquarters and in some condemned house property adjacent thereto. Every assistance was given to the Committee by the London County Council and the Fire Brigade. In each case the appliances were used by an unskilled person. In the opinion of the Committee the conclusion to be derived from these experiments is that, while none of the agents employed could be said to have any material effect on the combustion of the bomb itself, there was a very marked general difference between those experiments in which water was used and those in which dry powder was applied. The spread of the fire caused by the bomb was greatly limited and in some cases totally prevented by the application of water; whereas, after the application of the dry powder the fire continued to burn, although at each application some temporary check to the flames was observed. The Committee conclude that by far the best extinguishing agent is water and that the use of dry powder extinguishers gives a misleading sense of security, while being practically useless for extinguishing or effectively controlling fires likely to be caused by bombs. The main constituent of

the dry powder extinguishers was found to be bicarbonate of soda. It may be remembered that we reported in THE LANCET that the British Fire Prevention Committee recommended the use of a mixture of bicarbonate of soda and sawdust for the extinction of small petrol fires. In this case, however, the use of sawdust appeared to be effective because it floats on the top of the petrol so to an extent excluding the air and smothering the fire. The bicarbonate of soda, it was added in the report, had certain advantages, but its use was not regarded as essential.

INJECTION OF THE GASSERIAN GANGLION FOR TIC DOULOUREUX.

IN the *Medical Clinics of Chicago* for January Dr. Ralph C. Hamill, of the Cook County Hospital, has published the record of a case of trigeminal neuralgia successfully treated by the injection of the Gasserian ganglion with alcohol. The patient was an Italian labourer, aged 37, whose illness had been of some ten years' duration. Paroxysms of pain occurred at very frequent intervals, running from the inner canthus of the left eye down into the left upper bicuspids. This pain was described as consisting of lightning-like jabs of tearing, wrenching, stabbing pain, coming on with full intensity, and lasting from a few moments to three minutes. Swallowing, talking, chewing, shaving, &c., would all precipitate a paroxysm. On objective examination no signs of organic disease could be detected, and there was no evidence of arteriosclerosis. Tic douloureux is a well-known clinical condition for which no adequate pathology has ever been demonstrated, and its etiology is obscure. Where some definite local condition causes the pain there is usually a more or less constant dull ache apart from the paroxysms, whereas in so-called idiopathic trigeminal neuralgia between the paroxysms the patient is often entirely free from pain. The administration of various sedatives having proved unsatisfactory, Dr. Hamill injected the Gasserian ganglion with 20 minims of the following solution: alcohol 3½ drachms, cocaine 1 grain, water to half an ounce. The point selected for the injection was 2 cm. below the zygoma and 2½ cm. anterior to the external auditory meatus. When the puncture is made at this point it is necessary to have the patient open his mouth as widely as possible, in order that the needle may clear the coronoid process of the inferior maxilla. The needle is pointed upwards at an angle of about 60° to the plane of the face and slightly backward. At about 4 cm. in from the surface bone is encountered, the pterygoid plate; by slightly withdrawing the point of the needle, changing its direction rather more backward, and elevating it somewhat, the operator gradually feels his way with the needle-point past the edge of the pterygoid plate to the base of the skull, just lateral to the foramen ovale. If the point is then inclined slightly downwards and advanced, sudden pain should be felt in the distribution of the inferior division of the trigeminal—viz., in the lower jaw, cheek, lip, or tongue. If the needle is now advanced another ½ cm. pain will be felt in the other branches of the fifth. The syringe is then connected to the needle and a few minims of the alcohol mixture is injected. Immediately the patient complains of a sensation "as if thousands of little darts or needles had shot through the corresponding side of the face." Assured by this sign, the physician can then inject a further ½ to ¾ c.c., whereupon analgesia appears throughout the distribution of the nerve. It is advisable to shield the corresponding eye during the first 24 hours following the injection, or even to suture the lids together. Dr. Wilfred Harris, however, has shown that corneal ulceration may be avoided by stopping short of total anæsthesia; the good effects are just as lasting from the point of view of relief from the pain.

THE METROPOLITAN WATER-SUPPLY.

THE report on the condition of the metropolitan water-supply during the month of January by the Water Examiner appointed under the Metropolis Water Act was issued last week. It is the briefest document so far issued by this authority; its size perhaps reflects the shortage of paper, which is now seriously inconveniencing public bodies. The usual information on the chemical and bacteriological examinations, for which Dr. A. C. Houston, the Director of Water Examination, is responsible, is summarised by Mr. C. Perrin, and does not, as hitherto, appear separately. The tables containing the chemical and bacteriological results are, however, appended. All the samples of water collected at the different works were clear, bright, and free from suspended matter. The results of chemical examination showed that the raw waters of the New River, the Lee, and the Thames improved in quality as judged by the albuminoid nitrogen, permanganate, turbidity, and colour tests. The filtered waters, however, deteriorated as judged by the albuminoid nitrogen (New River excepted) and colour tests (with the exception of New River, East London, Sunbury, and Chelsea). Compared with the 1915 averages, the raw waters yielded results worse than their respective averages as judged by the usual tests. The filtered waters yielded similarly worse results. All three raw waters contained more bacteria than their respective averages, while the filtered waters gave, generally speaking, not unsatisfactory results. Whereas 95·0, 100·0, and 65·0 per cent. of the samples of raw Thames, Lee, and New River water respectively contained typical B. coli in one cubic centimetre (or less) of water, 83·4, 90·0, and 69·0 per cent. of the filtered samples derived from the Thames, Lee, and New River respectively contained no typical B. coli even in 100 times as much water examined—viz., 100 cubic centimetres. The rainfall was below the average mean for the month taken for the previous 33 years.

ITALY'S chief balneary resort, Montecatini, sustained (writes our Rome correspondent) a severe loss last winter in the deaths, within a few weeks of each other, of its consulting head, Dr. Guido Baccelli, and of its medical administrator, Dr. Pietro Grocco. Their vacant posts have just been satisfactorily filled by the appointment in succession to Baccelli of Dr. Augusto Murri, the veteran professor of clinical medicine in the University of Bologna, known also, since Baccelli's death, as "Dean of the Medical Faculty" throughout Italy; and by the appointment, as Grocco's successor, of Dr. Giovanni Battista Queirolo, who has long held the clinical chair in the Pisan School with conspicuous acceptance. One of the many sequelæ expected to supervene on the close of the present war will be, so far as Italy is concerned, a greatly increased development of her resources in balneary health resorts, with a view to

retaining within her borders, and even to attracting from beyond them, much of the *clientèle* hitherto claimed (not always justly) by the German and Austro-Hungarian thermal "cures." Montecatini will be among the first of Italy's balneary centres to receive the State encouragement in contemplation, and will enjoy, in the person of the Senator Dr. Queirolo, a Parliamentary representation and support which must redound to its interests in every sense—medical, material, and administrative.

THE Highlands and Islands Medical Service Board has issued under the title of a "Second Report" the various explanatory documents emanating from it up to the end of 1915. Several of these have been commented upon in THE LANCET at the time of their appearance, and their republication in the form of a Blue-book makes the information contained in them accessible in a handy form. The lists of medical men and of their districts were originally sent out in the less convenient guise of posters. Draft forms, including one of an agreement between the Board and a medical practitioner proposing to accept service under the Board, will be found among the appendices. The pamphlet can be obtained from H.M. Stationery Office (Scottish Branch), Edinburgh, and the usual official publishing firms, or through any bookseller. Its price is 3*d.* and its reference number Cd. 8246.

THE annual meeting of the British Dental Association is to be held in the hall of the Royal Society of Medicine on June 15th, 16th, and 17th. War injuries and gunshot fractures of the jaw will principally be dealt with, and an exhibition of appliances has been arranged. The discussion opens at 2.30 P.M. on the 15th and at 10.30 A.M. on the other days.

A COURSE of three lectures on Inherited Disease in Children will be given by Dr. Mary Scharlieb at 8 P.M. on Wednesdays, June 21st and 28th, and July 5th, in the Robert Barnes Hall, 1, Wimpole-street, W., by permission of the Royal Society of Medicine. The lectures, which are given free to women, will be illustrated by the epidiascope.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting was held at the society's offices, High Holborn, W.C., on May 19th, Dr. F. J. Allan being in the chair. The accounts presented showed a falling off in sickness in comparison with the same period last year, and the experience is below the expectation for the four months—an unusual feature for the spring months. It was reported that further sums had been invested in Exchequer Bonds, making a total of £18,000 now invested in War Stocks since August, 1914. Applications were reported from members for annuities under the new table which is now registered by the department and is accordingly open both to members and non-members, and it is hoped will prove satisfactory and useful to the profession generally. The society now transacts all the three benefits it was originally founded for and at rates that it would be hard to beat, and, as far as the sickness is concerned, impossible. The committee have decided that in future the society will pay the usual fee of £1 1*s.* for the medical examination of both new and additional proposals, the member to have the same right as hitherto of going to whom he pleases for such examination unless otherwise instructed by the society. Membership is still open to those taking temporary commissions in the Royal Army Medical Corps or the Navy within certain limits with regard to amounts, as so far the committee do not consider that the casualties justify them in any way altering their previous decision in this matter. No extra premiums are charged to members of the two forces mentioned. All applications for prospectuses and further information should be addressed to the Secretary, Medical Sickness and Accident Society, 300, High Holborn, W.C.

THE COCKROACH: ITS DESTRUCTION AND DISPERSAL.

A COMPARISON OF INSECTICIDES AND METHODS.

BY JOSEPH J. H. HOLT, M.B., CH.B. VICT., D.P.H.

THE common cockroach (*Periplaneta orientalis*) is one of the most widely distributed, as well as one of the most repulsive pests of civilisation. Its ubiquity and persistence demonstrate alike its fecundity and power of adaptation. There is little record of investigations dealing with the nuisance. Mr. Frederick Laing, Assistant in Entomology, British Museum, informs me that most of the work on the subject has been done in America, and some time ago. Much of the literature is old, because what has been done recently has been little more than a revision or repetition. He kindly sent me a list of these publications with details of some of the remedies suggested. These I found of little practical value.

For some two or three years I have been testing the action of various substances. Preliminary investigations in reference to general conditions gave some unexpected results. The cockroach is able to exist a long time without food or water. One survived for 76 days in a Petri dish. It can live with a very limited air-supply: in a very small stoppered bottle one lived for 3 days. Another survived submersion in water for 20 minutes. The cockroach is an expert climber; a full-grown specimen can crawl up the vertical side of a glass bottle. Hence walls and ceilings offer no impediment to it. It is not particular as to food-supply, eating practically all kinds of organic matter, and also its own dead. It is, however, very clean in its habits, and carefully cleanses its own body. The cockroach is soon adversely affected by contact with its own excreta. It prefers warm quarters, migrating till it finds them. Hence its predilection for kitchens on account of the constant warmth and available food-supply. It dislikes light, but even constant exposure to it for long periods does not seem to harm it. It is therefore evident that architectural prevision cannot keep out the cockroach, nor domestic cleanliness starve it out. When once established, it must either be destroyed or driven away.

In the following experiments the liquid volatile bodies were used in a large, wide-mouthed, glass-stoppered bottle of about 1250 c.c. capacity. In most cases the quantity was 1 drachm, and this, if volatilisation was complete, would give a concentration of 3·2 per 1000. As, however, few of the bodies were completely volatile, the actual strength was considerably below this. The liquid was sprinkled on lint, which was then suspended in the bottle, but did not touch the insects. Three to six insects were used, the time of death in each case recorded, and the average noted. This average is the one given in the tables. Most of the experiments were repeated two or three times, some much oftener. The dusting powders and food poisons were tested in shallow trays, covered over with glass to prevent the cockroach from escaping. Mechanical beetle-traps are of little use. They were found to catch a very small proportion only, and after they become rusty inside the cockroaches can easily crawl out.

The cockroach appears to be more resistant in autumn, but no correction has been made in the tables for temperature or season.

Results of Experiments on the Lethal Effect of Various Bodies on the Cockroach.

Volatile Bodies.

	Lethal in—
Bromine vapour, 0·016 : 1000*	½ min.
Sulphur dioxide	2 ,,
Chloroform, 1·6 : 1000	1 ,,
,, 0·8 : 1000	2 ,,
,, 0·4 : 1000	5 ,,
Ether, 6·4 : 1000	5 ,,
,, 3·2 : 1000	5 ,,
Carbon disulphide, 3·2 : 1000	8 ,,
Carbon disulphide, 0·8 : 1000	8 ,,
Bromoform, 3·2 : 1000	9 ,,
,, 0·8 : 1000	9 ,,
Hydrocyanic acid, 2% solution, 3·2 : 1000	10 ,,
Ammonium sulphide solution	15 min.
Acetone	32 ,,
Methyl alcohol	45 ,,
Ethyl ,, (spir. rect. B.P.)	70 ,,
Pyridine	70 ,,
Amyl alcohol	80 ,,
Wood naphtha	90 ,,
Acetic acid, concentrated	90 ,,
Paraldehyde	3 hrs.
Formaldehyde	3½ ,,
Nicotine (commercial alkaloid)	3 ,,
Liquor ammoniæ, concentrated	4 ,,
Chlorine vapour	4 ,,

* In each instance the concentration is that if full volatilisation had taken place.

Aromatic Oils.

Ol. Sinapis, essent.	75 min.	Ol. Anisi	25 hrs.
,, Origani (oil of thyme)	3 hrs.	,, Pini sylvestris	25 ,,
,, Aurant.	6½ ,,	,, Camphoræ	36 ,,
,, Rosmarini	8 ,,	,, Pimentæ	33 ,,
,, Eucalypti	9 ,,	,, Cedri	39 ,,
,, Succini	9 ,,	,, Fœniculi	44 ,,
,, Citronellæ	11 ,,	,, Sassafras	49 ,,
,, Cajaput.	12 ,,	,, Caryophylli	54 ,,
,, Carui	12 ,,	,, Valerian.	59 ,,
,, Myristicæ	14 ,,	,, Copaibæ	60 ,,
,, Lavandulæ	14 ,,	,, Cadinum	60 ,,
,, Limonis	15 ,,	,, Santal. flav.	85 ,,
,, Cinnamomi	18 ,,	,, Sinapis express	+100 ,,
,, Menth. pip.	20 ,,	,, Staphisagræ	+100 ,,
,, Geranii	21 ,,	,, Terebinth.	+100 ,,
Capsici rub.	23 ,,		

Coal-Tar Derivatives.

Toluol (b.p.* 110° F.)	45 min.	Creosote, commercial	3½ hrs.
Benzol (,, 80°)	45 ,,	Phenol (b.p. 180°)	10 ,,
Xylol (,, 140°)	82 ,,	Naphthalene (,, 216°)	63 ,,
Coal gas	2 hrs.	Anthracene (,, 360°)	+150 ,,

Paraffin Derivatives.

Benzoline (b.p. 60°)	17 min.	Petroleum ether (b.p. 36°)	2 hrs.
Heptane (,, 98°)	40 ,,	Paraffin (burning oil) (b.p. 150°–289°)	33 ,,
Petrol (,, 36°–69°)	60 ,,		

* b.p. = boiling point.

So far all the substances kill through the respiratory system.

Dusting Powders.

Chloral hydras, pul.	4 hrs.	Mustard, common	36 hrs.
Hydrarg. perchlor., dry	4 ,,	,, + boric acid (aa	22 ,,
Potass. sulphurata 4% and tart. ac.	4½ ,,	,, + sod. carb. exsicc.	28 ,,
Iodoform, crystals	9 ,,	Snuff (tobacco)	47 ,,
Iodine ,,	13 ,,	Dalmatian insect powder	48 ,,
Sod. fluoride, pul.	11 ,,	Dalmatian insect powder ether extract	38 ,,
,, ,, + boric acid	21 ,,	Dalmatian insect powder after ether extract	75 ,,
,, ,, + sod. carb. exsicc.	24 ,,	Keating's insect powder	50 ,,
Insecto	33 ,,	Veratr. alb. pulv.	86 ,,
Bleaching powder	19 ,,	Lycopodium powder	110 ,,
,, ,, + boric acid	11½ ,,	Alum pulv.	+100 ,,
Pepper, common	24 ,,	Borax ,,	+100 ,,
,, ,, + sod. bicarb.	18½ ,,	Hellebor. nigr. pul.	+100 ,,
Pepper, common, + sod. carb. exsicc.	35 ,,	Lead oxide	+100 ,,
Pepper, common, + boric acid	68 ,,	Plaster-of-Paris	+100 ,,
Pepper, black	22 ,,	Potass. carb.	+100 ,,
,, white	50 ,,	Red pepper, pul.	+100 ,,
Boric acid	25 ,,	Sod. chloride	+100 ,,
Bismuth carb.	27 ,,	Santonin	+100 ,,
		Sulphur sublim.	+100 ,,
		Quinine sulph.	+100 ,,

Most of these kill through the respiratory system.

Food Poisons.

	Lethal in—		
Arsen. oxide + flour + sugar (aa)	41 hrs.	.....	—
,, ,, 2% + treacle	+96 ,,	.....	—
Phosphorus (fumes from metal)	6½ ,,	.....	In small covered dish.
Sevum phosphoratum 5%	6½ ,,	.....	,, ,,
,, ,, 10%	178 ,,	.....	In large bottle. Open top.
Phos. 5 + flour 95 + aq. 600, in paste	36 ,,	.....	In small covered dish.
Phos. 5 + flour 95 + aq. 400, in paste	40 ,,	.....	,, ,,
Roachaline†	43 ,,	.....	,, ,,
Blattes†	37 ,,	.....	,, ,,
,,	107 ,,	.....	,, ventilated ,,
,, 10 gr. renewed daily	8 days.	.....	In large bottle. Closed top.
,, ,, ,, ,,	21 ,,	.....	In large bottle. Open top.
Plaster-of-Paris + flour + sugar	+100 hrs.	.....	Water-supply in separate dish.
Oxalic acid + potato + sugar	+100 ,,	.....	—
"Lyons" powder + potato	+100 ,,	.....	—

† Advertised remedies. In appearance and action much like the pastes immediately preceding. Sevum phosphoratum (Martindale), 10%, is apparently a stable preparation.

Commenting on the last table, the tolerance of the cockroach to arsenic is remarkable, and in any case its dangerous character unfits it for general use.

The action of the phosphorised poisons was tested more fully, as there seems to be reliable evidence that it has been found effective. But the statement which has been made that "after eating the paste the cockroach retires to its hole and dies" requires modification. If phosphorus kills at all it does so through the respiratory system. Strong fumes kill fairly quickly, but death is delayed the greater the dilution, until, with a good air-supply, practically no toxic effect is produced. One specimen lived 32 days in an open bottle in close contact with a fresh sample of phosphorus paste renewed daily. Hence if the cockroach always disappears when the poison is used as directed, some other explanation is required. And it would seem to be that it is the fumes which drive the cockroach away. It must therefore be exceedingly sensitive to such respiratory irritants, and this fact is of importance on other grounds. The experiments show that a number of bodies kill the cockroach through the respiration very quickly. This is its most vulnerable point. Assuming that the bodies which kill most quickly are also the most irritant, it is reasonable to suppose that they will also drive the cockroach away most quickly. The problem therefore seems to resolve itself into selecting from the respiratory poisons those which are most irritant to the insect, and at the same time least harmful to man. Of these substances bromine is the most active, but it disperses very quickly, and would therefore require the rooms to be sealed. Bromine is expensive. At pre-war rates it would probably cost about £2 to act on 1000 cubic feet. Sulphur dioxide (from burning sulphur) is also very effective and is cheap. In this case, too, the rooms must be sealed. These are probably the best methods for use on ships, where destruction must be aimed at, as the cockroach cannot be simply driven away. For domestic use the best available and most practical respiratory irritants are wood naphtha, one of the aromatic oils, or creosote. It is important to remember that a prolonged application, renewed daily (or nightly), is necessary. If only used once or twice the cockroach might regard the vapour as a passing nuisance and return when its influence was spent. Two or three weeks are required to produce any lasting effect. The paraffin derivatives, though very effective, are too dangerous for common use on account of their inflammability.

Many of the aromatic oils are available. The oil of citronella, used by sailors to keep mosquitoes out of their cabins, and by travellers as a preventive, is useful. Tested by the cockroach, the oils of thyme, orange, rosemary, and eucalyptus are more active, and would probably also be more effective with the mosquito. As these oils act by their odour, it would probably be better to sprinkle them upon the clothing, as more could thus be used and the effect last longer. These oils form the basis of many scents, which are therefore more or less anti-parasitic. It is interesting to recall that camphor and lavender have been used for generations to keep moths away from clothing. The experiments indicate, also, that the direct paraffin derivatives are more toxic than those of the coal-tar series. In both series the toxicity increases to a maximum as the boiling point rises, until a point is reached, after which it declines as the boiling point rises still further. Many of the dusting powders owe their efficacy to the volatile oil which they contain. Several are more effective than the Dalmatian insect powder, the reputed basis of Keating's powder. Potassa sulphurata, which gives off H_2S, soon becomes inert. The best powder tried was sodium fluoride. This is very effective and keeps well. A mixture of equal parts of bleaching powder and boric acid also acts well and keeps well. Although boric acid is useful, borax is useless. The powder of veratrum album pulv. is slightly active, veratrum nigrum useless. In this series of experiments the insects were kept in direct contact with the powder, and if there was no effect in 100 hours the powder was considered useless.

Summarising the results of the experiments as a whole, they seem to indicate that many of the substances which have been supposed to kill the cockroach have really acted by driving it away and so leading to its disappearance. Such gregarious migrations have been observed but have hitherto been otherwise explained. For quick destruction stoving with bromine or sulphur dioxide is apparently best. For domestic application the daily use of creosote, wood naphtha, or the oil of rosemary, eucalyptus, or citronella placed near the haunts of the cockroaches for two or three weeks should effectually disperse them. Where these are inadmissible on account of their smell, odourless dusting powders may be used. Of these sodium fluoride was found to be the most effective. It is also cheap and keeps indefinitely.

These experiments may have some value as applied to insect pests. The cockroach being abundant and of large size, it has been possible to use it as an "indicator" and to observe the results more accurately than would be possible with small insects. Other things being equal, the same results should follow in the case of many other insect pests.

Middleton, Lancs.

THE PROVISION OF MEALS FOR SOLDIERS' FAMILIES IN FRANCE.

(BY OUR SPECIAL SANITARY COMMISSIONER.)

Paris, May, 1916.

How to ensure a food-supply sufficient to maintain the nation when the entire male population of military age is mobilised constitutes a problem of which we in England are only beginning to perceive the difficulties, and these, moreover, have become apparent to us gradually. When the war began we in no wise attempted to mobilise the nation. Very few persons conceived that it would ever be necessary to do anything of the sort. If a small paid army of volunteers did not suffice we would pay more and secure a somewhat larger army. It was thus that many besides the wiseacres talked, while those who were able to speak with more appreciation of the situation were condemned as pessimists. To-day, however, we all realise that Great Britain and her colonies need an army like any great continental Power. We have obtained it, and as we have adopted the scale of payment which was fixed when competing with the labour market for volunteers, an unanticipated result follows—the poorer sections of our population were never so well off, though the cost of provisions has doubled. They were never so well clothed or so well fed as at the present time. It is necessary, however, to bear in mind that this is a state of affairs that cannot always continue. Though our financial situation may be stronger than that of any other nation, we cannot bear such a burden indefinitely. We must also contemplate the possibility that peace may not liberate us from the necessity of holding a huge army in readiness. We shall then have the same struggle to pay our army of the future as the continental Powers have to pay their present armies. If we have to support a large army after peace has been declared the question of feeding our population when a large proportion of the males are mobilised will come home to us: it is to-day a matter of vital importance for our allies.

Soldiers Supported by their Families.

It is indeed extremely difficult for the inhabitants of these islands to realise the immense sacrifice made by the peoples of the continent. During a recent tour in France I organised, with the approval of M. Poincaré and aid of the French authorities, a series of 25 meetings in all parts of the country. Such authorised representatives of British labour as Mr. George H. Roberts, M.P. (Junior Lord of the Treasury), Mr. John Hodge, M.P., and Mr. J. A. Seddon, a former President of the Trade Union Congress, accompanied me, and we endeavoured to explain the extent and importance of the aid Britain gave in waging the war. Of course, we were able to make a good show. The vast number of volunteers who flocked to our standards showed the nation to be capable of patriotic devotion. But if the French soldiers are not volunteers it also must be borne in mind that they are not paid. The French soldier used to receive ½*d.* per day; since the war this has been increased to 2½*d.*, or 25 centimes per day. How is the family of a man who is receiving 2½*d.* per day to be fed. As a matter of fact, it is not the soldier who keeps the family, but it is the family who keep the soldier. Here, then, we have a tremendous difference between the paid British soldier, with an allowance added to his pay for his wife and children, and the Frenchman, who to all intents and purposes serves his country gratuitously. The 25 centimes now allowed at best only serves to reduce a little the money that every family sends to its fighting members at the front so that they may be able to buy postage-stamps, tobacco, and occasionally some little luxuries. But all families have not the means to do this and keep themselves as well, and the problem presented is often found very difficult. How are poor families to be kept alive when the bread-winner has not only ceased to support them, but expects to receive some aid from them?

The position has been anticipated and prepared for in France ever since 1871. The exigencies of national defence have largely contributed to develop the wonderful thrift of the people, a quality that has enabled France to recover gaily from disasters that would have beaten down other nations. Practically no Frenchman marries till he has accomplished his term of barrack life and military training. During this period he has received his pocket money from his parents; and in marrying he prepares to send, in his turn, money to any sons whom he may have when it comes to their turn to serve. After three years with the colours he is for 11 years in the Active Reserve, and during the 21 days of annual training his wife and children practise running his business in his absence. Then for seven years more he is in the Territorial Army, and for yet another seven years in the Territorial Reserves. Thus for 28 years of his life every Frenchman may have to abandon his business and leave his family without any resource for a certain period in the year. During that period his family learn to take his place.

Separation Allowances and Moratorium for Rent.

In the majority of cases the French families, long warned as to what to expect, had made provision to face the emergency when war broke out. But this was obviously not possible among the worst-paid section of the labouring classes. Also, there was a quite large class that was not altogether without means to meet the exigencies of mobilisation, but had not sufficient to face the entire expense. For such people the moratorium on rent often sufficed, and it secured a roof over the heads of even the most desperate cases. The wife and the children of the French soldier have no claim to a separation allowance; yet from the first it was felt that those who had failed to make provision in case of mobilisation could not be left to die of starvation. Also, it is readily acknowledged that the badly paid sections of the working class could not be expected to make a sufficient, if any, provision. Then there was a considerable number of persons, many of them single women, who were entirely thrown out of employment by the war. It was the general opinion that relief should, indeed must, be given where genuine need could be proved. The amount at first was fixed at a franc per day per adult and half a franc per child. This has now been increased to 1.25 fr., or 1*s.*, per day for an adult, and 75 centimes, or 7½*d.*, per day for a child. As this relief comes from municipal funds and various other sources, there is some variety in detail. Thus, outside Paris more relief in kind is given than within the walls of the capital. However, the great point of contrast with what prevails in England is that the wives and children of soldiers only get relief in cash when existence of distress is demonstrated, and even then the sum allowed is very small.

With the present high cost of provisions, and even with the moratorium on rent, 1*s.* a day is not enough to live upon. Also, if at first the purchase of clothes could be deferred, now that the war is lasting two years and more obviously new clothes are needed. Therefore other help is necessary. To organise this help the trades unions and the Socialist Party took active steps in August, 1914. With more than a hundred representatives in Parliament they were able to bring considerable pressure to bear on the Government, and the Government very wisely authorised those who were in nearest touch with the poorer sections of the community to organise the distribution of the needed relief. The folly of allowing families with only a few shillings per week to buy their food at retail prices and then cook it at home, especially when coals cost from £3 to £4 a ton, was evident. The Socialist Party therefore and at once placed the whole of their organisation, their local committees and their knowledge of each locality, at the service of the State so as to provide cheap meals for the families of soldiers, for refugees from Belgium, the invaded provinces of France, and for those who had been thrown out of employment through the war.

Organising Meals for 3½d.

It was soon ascertained that on an average a meal cost in raw material, if bought at wholesale prices, and without counting fuel, labour, or rent of premises, 30 centimes, or 3*d.* But of late the rise in prices has increased the cost to 35 centimes. Empty premises were found somehow: abandoned pleasure booths, as in the gardens of the Buttes de Chaumont, deserted cinematograph halls, or unoccupied shops. Then voluntary labour was gladly offered, and municipalities and influential personages got fuel, if not for nothing, nevertheless at a price much under its market value. But who was to pay the 3*d.*, now 3½*d.* As this is not a question of relieving paupers, but, on the contrary, of helping some of the worthiest members of the population who were only suffering because the adult

male members of their families were fighting for their country; and as further these people, though very poor, were nevertheless receiving at least a small allowance, it was thought only right and calculated to preserve their sense of self-respect to call upon them to contribute to the cost. Therefore they were charged 1*d.* per meal. The rest of the money comes from various sources, the municipal funds and the Secours National being the principal. The latter organisation is not unlike our Prince of Wales's Fund, and it now gives 1½*d.* per meal served. Since August 17th, 1914, to March 31st, 1916, the Secours National has handed over to the special fund administered by the General Confederation of Labour £181,768 for the provision of meals. There are other special funds, notably a fund to give meals to families of the professional classes and to artists who are in distress through the war and to women about to become mothers.

Penny Soup.

There is in Paris an institution called Les Fourneaux Economiques, founded long before the war by the sisters of St. Vincent de Paul. These kitchens are established in various parts of Paris and they sell half a litre of soup for 1*d.* No one at home, especially if we count the cost of fuel, could make such good and nutritious soup for so small a sum. This institution, assisted by the Secours National, has had its scope of action greatly increased so as to help to meet the emergencies created by the war. As meat soup takes several hours to make, during which time terribly expensive fuel is consumed, it is a great saving to be able to purchase soup already made at so small a price. Indeed, though sold at 1*d.* the half-litre it actually costs in raw material not 10 but 12 centimes. It is generally made of a big piece of lard, some bones, a little meat, and, of course, a considerable variety of vegetables, with a dash of garlic and some laurel leaf and thyme to flavour. One excellent way to both colour and heighten the flavour of the soup is to broil the bones slightly before putting them into the cauldron, but I would not venture to say that this is done everywhere. Of course, these advantages are not offered to the public at large, otherwise many persons who can quite well afford to feed themselves, if unscrupulous, might apply. On the other hand, an applicant is never refused on first application, even if he has no card, but the name and address are demanded and an inquiry is made. If the result is satisfactory a card is given, otherwise the applicant cannot return. As a matter of fact, people rarely go to these places unless they are in great difficulties, and then help is very readily given. It may be said, however, that this distribution of soup is not very much encouraged. It is felt that if people are so poor as to need soup it would be very much better to give them a full meal.

Fortunately I am able to record that there is a very great reduction of the former widespread poverty and distress that prevailed at the commencement of the war in Paris and other industrial centres. Thus, in the Montmartre district of Paris I found that now barely more than 600 portions of soup are disposed of in the course of a day. In the past winter there was a demand for at least 2000 half-litres of soup in the 24 hours. This shows a great increase in employment, civil and military.

Catering and Cooking.

There are two or three establishments in each of the 20 arrondissements of Paris where these meals are bought and cooked. Some of these I was able to inspect, and my first visit was to Mme. Faure, who has established herself in an abandoned cinematograph hall in the rue de Torcy in the populous district of La Chapelle. Here I found a number of women busily engaged sewing. They were volunteers striving to earn the £4 per month charged as rent for the premises. Further, Madame Faure gleefully explained how, by the ingenious utilisation of high influences and protection, she had managed to get some coal at £2 a ton, for which most people paid £3 10*s.* or £4 the ton. Then she had to go to the Central Market very early in the morning and was thus able to buy meat and vegetables some 25 per cent. cheaper than from local tradesmen. But she had not attempted to roast any of the meat, that was far and away too extravagant. It was cheaper to make stews, especially of mutton and veal. The beef, first used for soup, was served later with onion sauce. The onions were fried in pork and in beef fat. The sauce thickened by flour sprinkled and made red in the boiling fat, then diluted with a very little water and a dash of vinegar. This constitutes a *bœuf mirvton.* Sometimes the sauce is diluted not with water but with a little red wine, then we have a *bœuf bourguignon.* The meal consists of soup, meat, vegetables, and bread; and a rich, appetising sauce ensures the eating of a large quantity of bread. If the allowance of meat is not large the diner can eat enough bread and sauce to constitute a sufficiently nutritious meal. Vegetables are generally served as a separate course, and lentils and rice are the least appreciated, but this, again, depends on the art with which they are cooked. At the rue de Torcy some 1800 meals of this description are served per day, costing in raw material, as already stated, 35 centimes each. The service is done by soldiers' wives who are members of the Socialist party, and they hope to thus give an object-lesson in collectivist enterprise.

At the Buttes de Chaumont the concert and dancing hall of a pleasure-garden had been converted into an eating-place and an outside shanty into a kitchen. Some potatoes had been boiled in beef and bone stock and flavoured with onions, garlic, and fine herbs, notably with chervil. They were appetising. Otherwise I was not favourably impressed; the arrangements were rough, and the portions of meat given perhaps too small. Of course, the meals differ according to the accommodation secured and the skill of the cooks, and the knowledge and ability of those who purchase the provisions. At first the discrepancies were very great, most of the helpers having no experience whatsoever. But with the quick adaptability of the French character, those who did not know soon learnt. Those who did not manage very well found out how to imitate those who were more successful. Thus to-day, though there are still considerable differences, a greater uniformity nevertheless prevails.

By far and away the best place I visited was in the rue de la Crimée. But perhaps a comparison is hardly fair, for these are well-aired, extensive premises built shortly before the war for a large, popular restaurant. There are modern kitcheners, a hot plunge-bath for the rapid washing of plates, well-trained assistants, and a professional chef to direct and manage. Here they ventured on roasts, and on the day of my visit there was veal beautifully roasted with brown and golden tints that could not but provoke the appetite. The bones from which this veal had been cut were broiled by exposure to a brisk fire, then boiled in water. The stock thus obtained was added to the lard and the fine herbs in which haricot beans are cooked. Thus tastily prepared, the haricot beans constitute a substantial and agreeable adjunct to the meat. A Belgian refugee makes at this centre excellent sausages that are sometimes preferred to meat. In the evening a lighter meal is given, consisting first of vegetable soup, in which, however, a considerable quantity of animal fat or butter is introduced, then some cheese, or fruit and a glass of wine or cider. Wine is becoming rare because last year's vintage was below the average and the greater part of the cheap wines are bought up for the army. Nevertheless it was satisfactory to note that a certain number of those who were dining were able to bring a little wine with them. They are not allowed to bring a large quantity; indeed, if they can afford large quantities then they would not be entitled to these cheap meals.

None Need Starve.

Altogether it is a great satisfaction to know that, notwithstanding the mobilisation of the entire available male population, no one need starve in Paris. Of course, the war has not interfered with the free feeding of the children attending the elementary schools. On the contrary, this has been done with even greater care than usual. And now that adults can get a full meal for 1*d.* it does not seem as if there should be any actual suffering from hunger, even though soldiers are not paid and there is no separation allowance for their wives and children unless they can prove actual distress.

SOCIETY OF MEDICAL OFFICERS OF HEALTH: SCHOOL MEDICAL SERVICE GROUP.—The annual meeting of the School Medical Service Group of the Society of Medical Officers of Health will be held on Saturday, June 10th, at 3 P.M., at 1, Upper Montague-street, Russell-square, London, W.C. Although many school medical officers have already accepted commissions, while others are doing extra duties, it is hoped that the meeting will be well attended, as the relation of the group to the parent society and other bodies will be considered, reports received, and officers elected.

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

THE returns in many instances have not been forthcoming, but we publish in one table a summary of the reports for three months—viz., November and December, 1915, and January, 1916—instead of for one month as heretofore. A large number of stations have discontinued making observations owing to the reduction of staff. There are no returns from Manchester stations at all, while in the cases of Kingston-upon-Hull, Leicester, Ravenscourt Park, and Wandsworth Common (two London stations) the records for November were lost owing to the breaking of the bottles by frost. It is hoped that the omissions due to shortage of staff will be made good when normal times return. The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables.

COMMITTEE FOR THE INVESTIGATION OF ATMOSPHERIC POLLUTION:

Summary of Reports for the Months ending November and December, 1915, and January, 1916.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre during month.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
Month ending Nov. 30th, 1915.										
ENGLAND—										
Exeter	41	0·02	1·14	1·97	0·82	2·40	6·35	0·96	0·49	0·01
Liverpool	54	0·22	2·68	9·23	3·26	4·45	19·84	2 01	1·31	0·20
London—										
Meteorological Office	61	0·18	1·05	5·86	2·24	7·36	16·69	1·79	0·92	0·06
Embankment Gardens	62	0·42	5·20	9·31	2·04	6·04	23 01	3·00	0·75	0·12
Finsbury Park	79	0·61	3·60	16·84	1·21	5·71	27·97	2·30	0·28	0·04
Southwark Park	73	0·09	2·83	5·49	0·93	4·44	13·78	2 08	0·41	0·08
Victoria Park	34	0·05	0·90	3·08	1·27	5·95	11·25	2·97	0·29	0·03
Golden Lane	59	0·11	4·81	8·80	3·29	4·47	21·48	2·90	0·65	0·21
Newcastle-on-Tyne	41	0·20	3·93	6·59	1·23	2·95	14 90	1·46	0·61	0·14
York	36	0·23	1·69	2·85	3·56	4·94	13·23	2·72	0·77	0·12
SCOTLAND—										
Coatbridge	25	0·04	1·09	2·21	0·98	1·74	6·06	1·02	0·11	0·09
Greenock	74	0·12	2·36	4·06	1·70	2·79	11·03	1·57	0·33	0·16
Leith	23	0·06	1·19	2·92	0·94	2·53	7·64	1·09	0·35	0·09
Month ending Dec. 31st, 1915.										
ENGLAND—										
Exeter	174	0·02	1·38	1·79	3·13	4·30	10·62	1·42	1·39	0·04
Kingston-upon-Hull	102	0·13	2·79	3·64	3·69	4·50	14·75	2·83	0·40	0·06
Leicester	117	0·14	1·29	3·52	6·94	4·89	16·78	2·79	0·79	0·15
Liverpool	135	0·31	3·43	5·60	3·78	8·62	21·74	3·88	1·29	0·26
London—										
Meteorological Office	106	0·06	3·88	0·14	Nil.	8·53	12·6	1·95	1·13	0·07
Embankment Gardens	118	0·25	3·90	7·32	1·70	8·91	22·08	4·60	1·09	0·10
Finsbury Park	121	0 10	1·43	3·34	0·82	4·27	9·96	2·47	0·56	0·06
Ravenscourt Park	109	0·07	0·94	2·58	1·13	4·35	9·07	2·19	0·35	0·06
Southwark Park	117	0·20	3·09	6·55	1·54	9·10	20·48	2·70	0·87	0·12
Wandsworth Common	118	0·03	1·39	4·04	1·65	4·26	11·37	2·44	0·71	0·03
Victoria Park	81	0·04	1·06	3·51	1·29	6·07	11·97	2·84	0·43	0·02
Golden Lane	117	0·06	2·99	3·43	5·14	5·61	17·24	4·05	1·06	0·23
Newcastle-on-Tyne	156	0·26	3·59	4·79	4·37	7·80	20·81	4·12	1·11	0·33
York	121	0·24	1·52	2·34	5·07	6·03	15·21	3·48	0·85	0·21
SCOTLAND—										
Coatbridge	63	0·09	2·06	3·29	1·46	2·94	9·84	1·60	0·18	0·20
Greenock	109	0·11	2·91	4·36	2·12	4·49	13·99	2·78	0·85	0·25
Leith	80	0·06	1·54	3·15	3·82	3·18	11·75	2·21	0·57	0·32
Month ending Jan. 31st, 1916.										
ENGLAND—										
Exeter	23	0·01	0·90	2·11	0·61	2·23	5·86	0·82	0·47	0·02
Kingston-upon-Hull	19	0·13	1·78	2·88	0·96	2·23	7·98	0·94	0·39	0·02
Leicester	28	0·20	2·12	2·57	0·98	2·57	8·44	1·29	0·38	0·10
London—										
Meteorological Office	29	0·05	Nil.	2·37	1·17	3·52	7·00	1·40	0·87	0·04
Embankment Gardens	42	0·16	2·54	4·89	3·28	6·94	17·80	3·24	1·98	0·10
Finsbury Park	39	0·08	1·89	5·18	1·33	3·96	12·23	1·85	0·60	0·04
Ravenscourt Park	39	0·05	1·07	3·15	0·98	4·66	9·91	2·22	0·17	0·06
Southwark Park	41	0·16	2·53	5·36	2·55	6·11	16·71	2·83	0·93	0·09
Wandsworth Common	23	—	0·35	1·13	0·57	2·43	4·47	1·09	0·30	0·02
Victoria Park	52	0·05	0·99	5·93	3·48	7·72	18·17	3·77	0·81	0·06
Golden Lane	29	0·07	2·36	3·20	1·52	3·51	10·66	1·82	0·79	0·07
Malvern	26	0·00	0·05	0·10	0·41	1·67	2·23	0·61	0·28	0·00
Newcastle-upon-Tyne	23	0·15	2·44	4·36	1·12	2·52	10·59	1·28	0·22	0·10
York	19	0·11	1·19	2·69	1·19	1·62	6·80	0·68	0·52	0·03
SCOTLAND—										
Coatbridge	108	0·11	2·19	7·18	1·48	6·16	17·12	1·90	1·45	0·11
Greenock	136	0·19	1·09	2·10	1·86	6·34	11·59	1·88	2·75	0·18
Leith	40	0·06	1·02	3·32	1·85	2·78	9·03	1·30	0·69	0·18

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) one gramme per sq. metre; (*d*) 1/1000 millimetre of rainfall.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Petrol for Medical Practitioners.

THE arrangement by which the military authorities granted permits for petrol consumption has been abandoned, and in some places, as in Belfast, the police now take charge. The city is divided into areas, and the inconvenience is avoided of hundreds of people assembling each day in the military barrack-square. In Dublin restrictions no longer exist, and it is hoped that they will be removed throughout Ireland as far as doctors are concerned. It is said there is no shortage of petrol.

The Death of Dr. C. E. FitzGerald.

I regret to announce the death, which took place on Saturday, May 27th, of Dr. Charles Edward FitzGerald, who was Surgeon-Oculist to the King in Ireland and formerly President of the Royal College of Physicians of Ireland.

The Winter in Ireland.

The weather in Ireland presented some marked and exceptional features in the past winter. As in Great Britain, January was exceptionally warm and dry, but it was followed by two severe months of persistent cold, with much rain in February, and rain, sleet, and frequent snowstorms in March. Sir John Moore, in a paper read before the Section of State Medicine of the Royal Academy of Medicine in Ireland, recently dealt at length with these climatic conditions and discussed the bearing of them upon the health of the community. The rainfall in Dublin for the six months ending March 31st exceeded 21 inches, being more than 7 inches in excess of the average. Of this 2·5 inches were accounted for in a tempestuous downpour lasting two days towards the middle of November. The copious precipitation in March came with cold north-east wind and was largely in the form of hail and snow. Besides the usual factors of distribution of atmospheric pressure and resulting prevalence of winds, Sir John Moore adduces the presence in the atmosphere of an undue quantity of matter in the form of dust, chemical or otherwise. The harmful effect on human life of the raw cold of February and March was shown by an increased mortality from diseases of the respiratory system, and especially in Dublin by a high incidence of pneumonia. In the first seven weeks of 1916 the registered deaths in Dublin from pneumonia numbered 70. In the second period of seven weeks 133, or an increase of 90 per cent. Comparing the same periods the increased mortality from respiratory affections in general was 108 per cent. Attention has been called to the effect on health of the fierce storms of March, and the early months of 1916 will long be remembered by many for their high incidence of respiratory diseases.

The King Edward VII. Memorial, Belfast.

The final meeting of the executive committee which had charge of the erection of the magnificent memorial to King Edward VII. at the Royal Victoria Hospital, Belfast, was held on May 24th, in the City Hall, Belfast. The object of the memorial is to provide an electrical department, a department of vaccine therapy, and one of physiological chemistry. After payment of all accounts, and setting aside a sum of £1087 for the purchase of further special scientific apparatus, there remains a balance of £80 12*s.* 4*d.* When those who will have charge of the special departments return from military duty there is no doubt that the work carried on in the new buildings will be of the greatest public value.

The Recent Rebellion: The Treatment of the Prisoners.

There have been complaints of the conditions under which these prisoners were confined prior to their deportation or release. In addition to the rebels who surrendered or were captured in arms, a large number of persons were arrested in the streets or houses on suspicion of complicity. All the prisoners are stated to have been treated alike without distinction as to the charges which might be subsequently brought against them. The complaints made by those who have since been released are that they were crowded in excessive numbers into ill-ventilated rooms without furniture of any kind, that food was insufficient and irregular in distribution, and sanitary conveniences wanting. The critics made no allowance for the fact that the military authorities, fresh to Dublin, had to deal suddenly with several thousands of prisoners whose custody was necessarily their first care. Indeed, the troops themselves for some time were not better off than the prisoners. Matters have since been set right, though perhaps after unnecessary delay; but early last week the military authorities invited the press to visit the Richmond Barracks and inspect the satisfactory conditions under which the prisoners are confined.

Ulster Medical Society.

At the annual meeting of the Ulster Medical Society held in the Medical Institute, Belfast, on May 25th, the following office-bearers were elected for session 1916–17:—President, Mr. R. Campbell; Vice-Presidents, Professor W. St. Cl. Symmers and Mr. H. A. J. S. Murphy (Lisburn); Members of Council, Mr. H. Stevenson, Mr. R. J. Johnstone, Mr. W. Burns, Mr. T. A. Davidson, Dr. F. Coates, Dr. F. C. Smyth; honorary treasurer, Dr. V. G. L. Fielden; honorary librarian, Dr. W. L. Storey; honorary editorial secretary, Dr. C. G. Lowry; and honorary secretary, Mr. S. T. Irwin.

May 29th.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

THE annual meeting of the Governors and General Council of this Fund was held on May 24th at St. James's Palace, when the SPEAKER of the House of Commons presided.

Lord REVELSTOKE, the honorary treasurer, in presenting the account of receipts and expenditure and the balance-sheet for the year ending December, 1915, said that the income from investments was larger than ever before, this being primarily due to the receipt of a full year's income from the first instalments of the Wernher legacy. Out of the whole of the revenue from the investments under the care of the Finance Committee, a revenue amounting to £97,000, the total loss to the income of the year through failure to pay interest or dividends since the war began amounted to less than £800, but notwithstanding this a sum of about £50,000 had still to be raised in order to maintain the distribution at last year's figures, without allowing for any increase in the needs of the hospitals. Since the beginning of the year notification had been made of the munificent bequest of the residue of the estate of the late Dowager Lady Wilton, estimated at about £150,000, of which sum £100,000 had already been received on account.

On the motion of the CHAIRMAN, seconded by Sir T. VEZEY STRONG, the adoption of the accounts was carried unanimously.

Sir SAVILE CROSSLEY presented the draft report of the General Council, which stated that the total receipts for the year 1915 were £226,779 19*s.* 5*d.*, of which £12,949 17*s.* 9*d.* were contributions to capital and £213,830 1*s.* 8*d.* receipts on general account, made up as follows: annual subscriptions, £25,724 16*s.* 11*d.*; donations, £5360 16*s.* 3*d.*; contribution from League of Mercy, £14,000; special donation from Sir Ernest Cassel (4½ per cent. War Stock), £28,000; from the Lewis Estate, £34,121 8*s.* 1*d.*; other legacies, £4412 10*s.* 7*d.*; dividends and interest from investments, £97,218 1*s.* 9*d.*; dividends and interest collected in 1915 but relating to 1914, £4792 8*s.* 1*d.*; from the trustees of the Bawden Fund, £200. The amount originally appropriated for distribution was £140,000, being the same amount as in 1914. Of this, £133,500 were allocated to London hospitals and £6500 to consumption sanatoria and convalescent homes taking London patients. These totals were increased by the supplementary grants in respect of Sir Ernest Cassel's gift to £168,000: £160,200 and £7800 to the two classes of institution respectively. Of the £133,500 allocated by the Fund from its ordinary resources to the London hospitals, £111 775 were granted in aid of general maintenance, £5750 to the reduction of debts on maintenance account, and £15,975 towards schemes of buildings or improvements; the supplementary grants following the same apportionment. The £6500 distributed by the Convalescent Homes Committee

(apart from the supplementary grants of £1300 War Stock) were allocated as follows: £4560 to convalescent homes and £1940 to consumption sanatoriums. The total sum distributed amongst hospitals, convalescent homes, and consumption sanatoriums during the last ten years (after deducting conditional grants to the extent of £7500 that have been allowed to lapse), was £1,484,750. Since the foundation of the Fund a total amount of £2,098,416 8*s*. 5*d*. had been distributed. The first million had been passed in 1909, the thirteenth year of the Fund. It had taken six years for the grants to reach the second million. The average annual distribution for the whole period of 19 years had been £110,442 19*s*. 4*d*. During 1915 the amount spent on administration was £3205 16*s*. 1*d*. or £1 8*s* 3*d*. per cent. of the total amount received, as compared with £3178 6*s*. 5*d*. or 12*s*. per cent., the previous year. The corresponding percentage for the whole period since the inauguration of the Fund had been £1 4*s*. 7½*d*., and the average yearly outlay in this respect had been £2819 0*s*. 7*d*. His Majesty the King, Patron of the Fund, had been graciously pleased to continue his annual subscription of £1000, and Her Majesty Queen Mary, Her Majesty Queen Alexandra, His Royal Highness the Prince of Wales, and many other members of the Royal Family, had also again honoured the Fund with subscriptions. The list of contributors included annual subscriptions of £5000 from Mr. Walter Morrison, £4000 from the Drapers' Company, £1000 from Lord Astor, and £1000 from the Merchant Taylors' Company; besides an anonymous donation of £1000. The Fund had also received annual subscriptions of £500 from the City Corporation, from Lord Iveagh, from Sir John R. Ellerman, Bt., from Mr. Robert Fleming, from Messrs. Morgan, Grenfell, and Co., and from Messrs. N. M. Rothschild and Sons; and donations of the same amount from the Clothworkers' Company, and from "S.D R.S D." The League of Mercy had again contributed £14,000. The total amount received from the League of Mercy since its foundation in 1899 now amounted to £230,000, apart from the sums awarded by the League to institutions outside the area of the Fund's distribution. In order to maintain the distribution on the same scale as that of the last two years, an annual sum of nearly £50,000 had to be raised from subscriptions, donations, and legacies. The total amount received from annual subscriptions and donations during 1915 (apart from the gift of Sir Ernest Cassel) showed, as compared with 1914, a decrease of £162 8*s*. 4*d*., while the receipts from legacies (other than the Lewis and Harman bequests) were £24,083 18*s*. 8*d*. less than in the previous year, and were £27,482 6*s*. 10*d*. less than the average of the five years 1910–1914.

The CHAIRMAN having formally moved the adoption of the report, the Earl of BESSBOROUGH seconded, and the motion was carried unanimously.

Sir WILLIAM CHURCH (chairman of the Distribution Committee) moved the adoption of a report of that committee on the expenses of the Bland-Sutton Institute of Pathology at the Middlesex Hospital. The report recommended that the scheme of apportionment between hospital and medical school now submitted by the hospital should be accepted as regards the year 1915 as satisfying the condition attached to the grants made by the Fund in December last—namely, that the expenditure should be allocated in the accounts for 1915 in accordance with a scheme of apportionment to be approved by the Fund. This was seconded by Sir JOHN TWEEDY and carried *nem. con.*

In the absence of Dr. Freshfield (chairman of the Convalescent Homes Committee), Sir WILLIAM H. BENNETT moved the adoption of a report of that committee on the subject of a special application from the National Association's sanatorium at Benenden. The report, which was seconded by the President of the Royal College of Surgeons of England (Sir W. WATSON CHEYNE) and adopted, recommended that the committee be empowered under certain circumstances to promise and if required to pay over an emergency grant of a limited amount.

In the course of some remarks in reply to a vote of thanks the CHAIRMAN said that as the war continued the margin of eleemosynary funds available for the general charities of the country must shrink to a considerable extent. There must be no disappointment if at the meeting next autumn, or this time next year, the Fund had to report a considerable shortage.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeons: T. T. Jeans to *Victory*; P. H. Boyden and W. G. Thwaytes to *President*; P. H. Bannister to *Falmouth*; and J. P. H. Greenhalgh to *Pembroke*, additional. Staff-Surgeons: R. Kennedy and N. H. Harris to *Pembroke*; and B. S. Robson to *Birmingham*. Temporary Surgeons: P. W. Carruthers to *Pembroke*; and R. P. Ninnis to *Neptune*.

ARMY MEDICAL SERVICE.

Surgeon-General Sir William Babtie, V.C., K.C.M.G., C.B., to be a Director of Medical Services at the War Office.

Colonel Roger Kirkpatrick, C.M.G., on completion of four years' service in his rank, is retained on the Active List.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Charles T. Blackwell is retained on the Active List.

The undermentioned temporary Captains relinquish their commissions: C. E. Murphy, E. A. Evans, Sir Vincent Nash, A. Waugh, and N. L. Prichard.

Temporary Captain H. O'Callaghan relinquishes his commission on account of ill-health.

E. D. Pullon to be temporary Captain.

Temporary Lieutenants to be Temporary Captains: P. J. Maguire, W. F. Dunlop, G. J. Adams, J. F. Carruthers, A. S. Seabrooke, M. Kirton, J. O. Thomas, J. N. Wheeler, C. E. Bashall, A. P. Yonge, R. T. Cooke, D. M. Callender, G. A. Jelly, R. W. T. Clampett, J. A. R. Lee, S. J. A. Beale, F. J. Dunne, G. I. Moriarty, G. H. Wood, C. Armstrong-Dash, I. Macfarlane, A. Thomson, R. N. Weekes, C. M. Willmott, C. Checchi, A. J. Trinca, R. W. Ryan, N. S. Gilchrist, H. A. Hancock, J. W. N. Roberts, F. W. Stone, C. C. Finlator, H. S. Davidson, W. D. Perry, W. Penberthy, J. Boyd, A. T. Marshall, B. W. Mudd, R. C. Phelps, J. H. Bogan, D. F. O'Kelly, C. Gibson, E. S. Cuthbert, J. M. McKenzie, J. M. MacKay, D. McD. McIntyre, T. Ruddock-West, J. H. N. F. Savy, H. Adams, C. G. Shearer, A. G. B. Duncan, J. Ross, W. F. Stevenson, T. H. Scott, J. E. Judson, A. St. Johnston, T. B. Jobson, J. H. Jones, G. D Hindley, J. H. E. Davis, A. R. Roche, J. R. Dixon, J. B. Woodrow, A. L. Jackson, E. C. Abraham, W. Raffle, C. R. Denny, G. T. MacLean, G. A. Bird, D. Fleck, C. T. Hilton, W. R. Reith, J. S. Bookless, C. F. Harford, S. V. Telfer, A. C. Renwick, G. L. Neil, G. E. Lockyer, J. Kean, R. T. Herron, E. E. Frazer, A. Crawford, R. H. G. Weston, C. C. Cragg, A. Richmond, G. McMullan, A. MacK. Clark, R. F. Yencken, A. J. C. Tingey, J. R. Pate, C. E. Price, W. S. Nason, G. S. Miller, R. J. Ledlie, J. H. Hebb, C. Coventry, R. T. Cox, J. Howe, W. R. Main, A. H. Mountcastle, W. F. G. Scott, T. G. Williams, O. Heath, J. McKenzie, H. D. Field, R. H. Cox, C. Crerar, S. D. Adam, W. Wallace, J. Ash, J. H. Saunders, T. H. Phillips, W. R. Watt, R. D. Brinton, G. D. Kerr, E. P. Carey, G. S. Ware, J. F. Wolfe, S. Wyborn, R. M. Stewart, H. Spinks, T. F. B. Reid, F. W. Rowland, C. C. Harris, M. D. Eder, R. Park, E. W. Blake, B. Pickering, H. H. Proudfoot, J. T. Macnamara, A. G. K. Ledger, A. Randle, R. A. M. Macleod, B. H. Shaw, M. A. McKeever, J. H. Hart, N. Devereux, J. H. Drew, J. G. Murray, W. G. R. Macauley, G. M. Bluett, R. T. Raine, H. Harvey, W. A. Rogerson, D. L. Hutton, W. J. Harris, J. B. Dalton, C. M. Brophy, C. E. Fenn, E. G. Sworder, A. D. Blakeley, T. M. Crawford, A. L. Paliologus, R. Hughes, H. P. D'A. Benson, M. Ashley, W. S. Stalker, C. Loddiges, W. M. S. Robinson, A. F. Wright, A. Adams, R. F. Russell, G. Holroyde, W. Russell, H. E. Griffiths, R. W. Long, E. T. Larkham, A. E. Quine, C. R. H. Crawford, E. C. Pratt, R. J. Bonis, H. M. Agnew, A. W. Forrest, J. B. Baird, J. D. Batt, J. F. Broughton, J. L. Waller, J. J. Robertson, H. H. Carleton, E. G. Rawlinson, E. J. Morton, E. A. C. Swainson, C. Bennett, J. W. Innes, R. R. Pirrie, J. W. McCagie, G. S. Douglas, E. H. Walker, J. Coutts, A. J. McCreadie, G. Miller, R. MacN. Marshall, C. L. G. Powell, J. Muirhead, H. M. Brown, A. J. Hickey, R. R. Duncan, E. T. Roberts, A. W. D. Coventon, E. G. D. Pineo, John V. Brown, A. F. Mavety, R. E. Horkins, R. L. Shields, J. M. MacPhail, A. A. Cooper, C. H. Newton, T. F. Dillon, T. Gilchrist, H. C. Thorp, G. W. Thompson, J. D. MacKinnon, V. H. Blake, R. J. Batty, W. J. Dunlop, J. C. Turnbull, G. B. Simpson, W. Harmens, C. B. Pearson, B. Jones, L. Lane, D. McF. Livingstone, F. B. G. Stableford, M. A. Milne, J. M. Morrissey, H. F. Vandermin, G. N. Urie, J. W. Sutherland, M. H. Paterson, G. C. Anglin, J. F. McLay, L. M. Dawson, J. E. Knox, O. J. Day, K. G. McKenzie, H. Crassweller, T. O. Hutton, C. G. Sutherland, S. C. H. Moberley, O. Shields, H. Yellowlees, A. T. Nankivill, R. H. King, J. M. Elliott, J. M. Campbell, J. Buchanan, D'A. I. Hamilton, J. M. Young, L. E. V. Every-Clayton, G. H. Russell, S. Waddell, J. D. Marshall, L. A. J. Graham, A. B. Gordon, G. H. Keene, S. V. P. Pill, J. F. Hammond, W. A.

Anderson, C. Reidy, W. P. Cooney, J. Dixon, A. C. B. McMurtrie, H. T. Newling, H. E. Collier, H. L. Attwater, T. Jays, J. E. L. A. Turnley, G. Stoddart, S. J. Rowntree, J. A. W. Watts, A. V. Craig, G. W. R. Rudkin, snd A. Ferguson.

The undermentioned temporary Lieutenants relinquish their commissions:—F. G. M. Simpson, J. Campbell, E. A. Bullmore, T. E. Dobbs, T. H. Gandy, T. A. Collinson, N. T. Bond, F. J. Blackley, G. C. Stewart, A. E. Stenning, J. C. Martin, T. Wright, G. H. Culverwell, J. Brunton, H. L. Cumming, A. G. J. Thompson, J. H. Heddle, S. F. Smith, G. F. C. Walker, W. Magner, T. Clifford, M. G. McElligott, D. V. O'Connor, S. J. Wareham, D. O. Twining, F. S. Beachcroft, R. Harrison, J. M. Bennion, F. Jubb, J. Bowes, A. S. Webley, W. E. Cooper, J. Campbell, and I. D. Hayes, on account of ill-health.

The undermentioned temporary Honorary Lieutenants to be temporary Lieutenants:—H. Lewis, A. Wilson, A Sutherland, P. R. O'R. Phillips, L. Gameson, N. G. Mottram, and H. M. Moran.

Canadian Army Medical Corps: Lieutenants to be temporary Captains: H. G. Wood, A. J. Martin, H. C. Moses, and D. G. Turnbull. To be temporary Lieutenants: L. E. Bolster, W. G. Shaw, W. A. Cardwell, D. P. Lucey, R. C. B. Briscoe, F. R. Wilson, G. H. Fraser, P. A. Rostant, J. Dickson, C. Harris, H. E. H. Tracey, G. W. Ronaldson, G. Stivala-Aspinall, R. J. Arundel, A. R. C. Doorley, R. M. de Mowbray, E. L. K. Sargent, D. J. Roantree, A. E. A. Carver, H. F. B. Bodvel-Roberts, J. M. Johnstone, J. F. Penman, C. T. Darwent, D. Corry, S. J. W. Donald, J. S. Rowlands, W. MacAdam, T. G. Evans, D. J. Harries, S. A. Burn, V. A. Crinks, H. R. Helsby, A. K. Henry, J. Keyms, A. W. Owen, E. H. Price, D. Ranker, T. L. Jones, W. Reynolds, S. B. Turner, R. L. MacK. Wallis, H. R. Hodgkinson, J. Cairus, W. G. Marsden, G. N. Brandon, J. M. W. Morison, W. Turner, F. Shannon, J. Elliot, E. H. Montgomery, H. M. Drake, G. Arthur, D. I. Dakeyne, J. J. Moriarty, C. A. R. McCay, C. W. Von Bergen, J. A. Hope, H. F. Ferguson, J. McGarrity, W. Fraser, R. W. Miller, R. D. L. Greene, E. J. B. Moynihan, D. Gaston, H. H. Crickitt, A. Smirthwaite, A. Campbell, R. H. Balfour-Barrow, G. W. Doran, W. T. Evans, H. M. Gray, D. M. Smith, J. Manuel, H. Joslen, P. L. Blaber, W. Spiteri, C. T. Cheatle, A. T. Thurston, H. S. Raper, D. A. Farquharson, J. A. H. Vanderwert, and K. Elmes. To be temporary Honorary Lieutenants: G. Moulson, H. K. Graham-Hodgson, E. G. Howell, N. N. Hayson, K. D. Atteridge, L. W. Evans, P. S. Clarke, H. L. Hughes, and A. H. Clarke.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant (on probation) D. H. Paterson is confirmed in his rank.

TERRITORIAL FORCE.

Royal Army Medical Corps.

London Field Ambulance: Captain J. M. Taylor, M.B., from a Mounted Brigade Field Ambulance, and M. T. G. Clegg (late Lieutenant (temporary Captain), London Brigade, Royal Field Artillery) to be Captain.

Welsh Casualty Clearing Station: Captain A. C. Devereux, from Welsh Field Ambulance, to be Captain.

Southern General Hospital: Lieutenants T. F. Stafford and S. E. Whitnall to be Captain.

South Midland Mounted Brigade Field Ambulance: Captain E. Whichello, from a Casualty Clearing Station, to be Captain.

South Western Mounted Brigade Field Ambulance: G. L. Findlay to be Lieutenant.

South Midland Field Ambulance: Captain W. V. Wood, from a Mounted Brigade Field Ambulance, to be Captain.

London Mounted Brigade Field Ambulance: Captain (temporary Major) W. P. Thomas relinquishes his temporary rank on ceasing to command a Field Ambulance.

Attached to Units other than Medical Units.—Surgeon-Major H. Stallard, from Notts and Derby Regiment, to be Major, and Surgeon-Major A. C. Turner, from West Riding Division, Royal Engineers, to be Major. Captain A. W. W. Swettenham relinquishes his commission on account of ill-health. Captain (temporary Major) H. F. Everett relinquishes his temporary rank on ceasing to command a Field Ambulance. Allen Iredale to be Lieutenant.

Supernumerary for service with the Officers Training Corps.—Lieutenant (temporary Captain) G. A. Williamson.

VOLUNTEER FORCE.

Liverpool Regiment: Surgeon-Major W. Richardson resigns his commission, with permission to retain his rank and to wear the prescribed uniform.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In continuation of a paper published in the November issue of the *Journal of the Royal Army Medical Corps* Major C. J. Coppinger and Captain H. G. Gibson record in the May number a series of experiments in the inoculation of man with mixed vaccines containing bacillus typhosus, B. paratyphosus A, and B. paratyphosus B, with regard to the reaction produced and the antibody formation. The results of the experiments seem to point to the fact that the B. paratyphosus A content of the vaccine may not achieve its object to the same extent as that of B. typhosus and B. paratyphosus B. A report on "Trench Foot" by Captain W. Waller and Lieutenant E. K. Rideal advocates as a result of some interesting experiments the use of a salted ointment for protecting the foot against water, and Mr. Scot Skirving, of Sydney, at present surgeon to the Queen Alexandra Military Hospital, Millbank, discusses the question of reamputations in the case of non-healing stumps with protrusion of bone, many cases of which have occurred among the repatriated prisoners from Germany. Mr. J. F. Colyer, surgeon to the Royal Dental Hospital, describes the methods adopted and the experience gained in the treatment of gunshot injuries of the jaws in the Croydon War Hospital, of which he is honorary consulting dental surgeon.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 8135 births and 4164 deaths were registered during the week ended Saturday, May 27th. The annual rate of mortality in these towns, which had declined from 17·0 to 14·1 per 1000 in the four preceding weeks, further fell in the week under notice to 12·5 per 1000 of their aggregate civil population estimated at 17,312,295 persons for the year 1915. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 15·6, against 15·3 per 1000 in London. During the week the death-rate ranged from 3·7 in Wimbledon, 4·3 in Wallasey and in Wakefield, 4·6 in Gillingham, 5·0 in Swindon, and 6·0 in Enfield, to 19·2 in St. Helens, 20·5 in Middlesbrough, 20·7 in Gateshead, 21·6 in Stockton-on-Tees, and 21·7 in Bournemouth.

The 4164 deaths from all causes were 509 fewer than the number in the previous week, and included 326 which were referred to the principal epidemic diseases, against numbers declining from 431 to 352 in the four preceding weeks. Of these 326 deaths, 131 resulted from whooping-cough, 85 from measles, 53 from infantile diarrhœal diseases, 34 from diphtheria, 16 from scarlet fever, and 7 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 1·0, against 1·1 per 1000 in each of the three preceding weeks. The deaths attributed to whooping-cough, which had been 139, 125, and 128 in the three preceding weeks, rose to 131, and caused the highest annual death-rates of 1·1 in West Ham, 1·3 in Manchester, 1·7 in Walsall, 2·2 in Oldham, and 2·5 in Sunderland. The deaths referred to measles, which had been 120, 124, and 103 in the three preceding weeks, further fell to 85, and included 13 in London, 11 in Liverpool, 9 in Stoke-on-Trent, and 8 each in Manchester and Sheffield. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 59, 48, and 62 in the three preceding weeks, fell to 53, of which 13 were registered in London, 6 in Liverpool, 4 each in St. Helens and Manchester, and 3 in Bristol. The deaths attributed to diphtheria, which had declined from 65 to 38 in the six preceding weeks, further fell to 34, and included 6 in London and 3 each in Norwich and Middlesbrough. The deaths referred to scarlet fever, which had been 17, 18, and 15 in the three preceding weeks, numbered 16; 3 deaths were recorded in London and 2 each in Stoke-on-Trent, Birmingham, and Sheffield. The 7 fatal cases of enteric fever, of which 2 occurred in Manchester, were equal to the average in the earlier weeks of the quarter.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had steadily declined from 1778 to 1444 in the seven preceding weeks, further fell to 1398 on Saturday last; 161 new cases were admitted during the week, against 153, 167, and 139 in the three preceding weeks. These hospitals also contained on Saturday last 1248 cases of diphtheria, 218 of whooping-cough, 196 of measles, 35 of enteric fever, and 1 of small-pox. The 966 deaths from all causes in London were 132 fewer than in the previous week, and corresponded to an annual death-rate of 11·7 per 1000. The deaths referred to diseases of the respiratory system, which had declined from 405 to 160 in the ten preceding weeks, further fell to 128 in the week under notice.

Of the 4164 deaths from all causes in the 96 towns, 176 resulted from violence, 323 were the subject of coroners' inquests, and 1297 occurred in public institutions. The causes of 43, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or

by a coroner after inquest. All the causes of death were duly certified in Leeds, Bristol, West Ham, Nottingham, Leicester, and in 66 other smaller towns. Of the 43 uncertified causes, 8 were registered in Liverpool, 7 in Birmingham, and 2 each in London, Portsmouth, Stoke-on-Trent, Coventry, and Bootle.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,372,000 persons at the middle of this year, 1156 births and 653 deaths were registered during the week ended Saturday, May 27th. The annual rate of mortality in these towns, which had been 15·4, 14·8, and 15·0 per 1000 in the three preceding weeks, fell to 14·4 per 1000 in the week under notice. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 16·6, against 15·6 per 1000 in the large English towns. Among the several towns the death-rate during the week ranged from 4·6 in Clydebank, 8·9 in Kirkcaldy, and 11·1 in Motherwell, to 18·4 in Paisley, 18·7 in Perth, and 21·4 in Hamilton.

The 653 deaths from all causes were 28 fewer than the number in the previous week, and included 66 which were referred to the principal epidemic diseases, against 61 and 53 in the two preceding weeks. Of these 66 deaths, 34 resulted from measles, 10 each from diphtheria and infantile diarrhœal diseases, 9 from whooping-cough, and 3 from scarlet fever, but not one from enteric fever or from small-pox. The annual death-rate from these diseases was equal to 1·5, against 1·0 per 1000 in the large English towns. The deaths attributed to measles, which had been 27, 32, and 25 in the three preceding weeks, rose to 34, and included 22 in Glasgow, 3 each in Dundee and Leith, and 2 in Paisley. The deaths referred to diphtheria, which had been 2, 5, and 3 in the three preceding weeks, rose to 10, of which 6 occurred in Glasgow. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 12, 4, and 4 in the three preceding weeks, rose to 10, and included 4 in Glasgow, and 2 each in Aberdeen and Clydebank. The deaths attributed to whooping-cough, which had been 11, 11, and 17 in the three preceding weeks, fell to 9, of which 5 were recorded in Glasgow. The 3 fatal cases of scarlet fever were 5 below the average in the earlier weeks of the quarter, and comprised 2 in Glasgow and 1 in Paisley.

The deaths referred to diseases of the respiratory system, which had been 103, 103, and 106 in the three preceding weeks, fell to 101 in the week under notice, and were 40 below the number registered in the corresponding week of last year. The deaths from violence numbered 18, against 31 and 19 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the registration area of Dublin 236 births and 155 deaths were registered during the week ended Saturday, May 27th. The deaths corresponded to an annual rate of 19·8 per 1000, or excluding 12 deaths resulting from the recent disturbances to 18·3, against 11·7 in London and 14·8 per 1000 in Glasgow.

Of the 155 deaths of all ages, 21 related to infants under 1 year and 36 to persons aged 65 years and upwards. The deaths referred to the principal epidemic diseases numbered 7, against 14 in the preceding week, and included 2 each from whooping-cough and infantile diarrhœa, and 1 each from measles, scarlet fever, and diphtheria.

The causes of 12 deaths were uncertified, while 4 others were the subject of coroners' inquests; 61 deaths occurred in public institutions.

During the same period 192 births and 128 deaths were registered in the city of Belfast. The deaths were equal to an annual rate of 16·6, or 0·1 per 1000 below that recorded in the previous week, and included 13 of infants under 1 year and 24 of persons aged 65 years and upwards. The deaths from the principal epidemic diseases numbered 8, of which 3 were referred to measles, 2 each to whooping-cough and diphtheria, and 1 to infantile diarrhœa.

The causes of 4 deaths were uncertified, 3 others were the subject of coroners' inquests, while 28 occurred in public institutions.

MEMORIAL TO THE LATE FREDERICK LAWRANCE, M.R.C.S., L.S.A.—A memorial to Mr. Frederick Lawrance, whose death, in his eighty-fifth year, occurred on May 1st, 1915, and was recorded in our obituary columns, was dedicated by the Bishop of London on May 21st at a service in St. Peter's Church, Hammersmith. The memorial consists of a chime of bells and of a marble tablet with a medallion portrait commemorating an attendance of more than 50 years at the church and a professional activity in the district the same long period. The memorial was subscribed by friends and patients of the deceased; in supplying the bells they fulfilled his cherished desire.

Obituary.

SIR JAMES FREDERIC GOODHART, BART., M.D., LL.D. ABERD., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO GUY'S HOSPITAL AND THE EVELINA HOSPITAL FOR CHILDREN.

WE regret to announce the death of Sir James Frederic Goodhart, consulting physician to Guy's Hospital, which occurred on Sunday last, May 28th, at his house in Portland-place, in the seventy-first year of his age.

Sir James Goodhart was born in London and received his medical education at Guy's Hospital, taking the qualification of the English Royal Colleges in 1868. In 1869 at the opening of the Evelina Hospital for Children he was appointed house surgeon, and later, having filled the usual residential posts at Guy's Hospital, he proceeded to the University of Aberdeen and graduated as M.B., C.M., with special honours, proceeding to the Doctorate of the University in 1873. In 1875 he became a Member of the Royal College of Physicians of London and pathologist to Guy's Hospital, being also appointed assistant physician to the Evelina Hospital. In 1877 he was appointed assistant physician to Guy's Hospital, being elected a Fellow of the Royal College of Physicians of London three years later. Among his teachers were Cock, Hilton, Habershon, Wilks, Pavy, and Bryant, and owing to his early success all of these now became his colleagues, together with Dr. Frederick Taylor, Pye-Smith, Howse, Mr. Golding-Bird, and Mr. Jacobson. He was already physician to the Evelina Hospital for Children as well as medical adviser to several public institutions when he was elected upon the staff of Guy's Hospital, so that it will be seen that Goodhart planted his foot firmly on the professional ladder while quite a young man. Indeed, the story of his professional life was one of continued success, his skill in diagnosis, his resourcefulness in treatment, and his candid attitude towards patients and professional colleagues alike proving recommendations to a very large circle of patients. A series of untimely deaths among his seniors helped to open the way for him to a position which he richly deserved, though he might not have so promptly obtained it. For many years he enjoyed a very large consulting practice without being connected in the minds of the public with any one particular specialty. His clinical work, indeed, ranged over a very wide field. He was first known for his connexion with the Evelina Hospital as an authority on the diseases of children. His next work to attract attention was pathological, and in connexion with the liver and spleen. He wrote, also, largely on respiratory and renal conditions, while his lectures delivered before the Harveian Society on Common Neuroses enjoyed a wide circulation in book form. The lectures were published in full in THE LANCET and appeared practically unaltered in the volume, where the strong good sense of their inspiration and the terse and vigorous language employed secured for their author instant popularity. And it may be said that in all the various departments of medicine in which he worked he displayed the same qualities of thoroughness, shrewdness, originality, and, when it was appropriate, considerable humour.

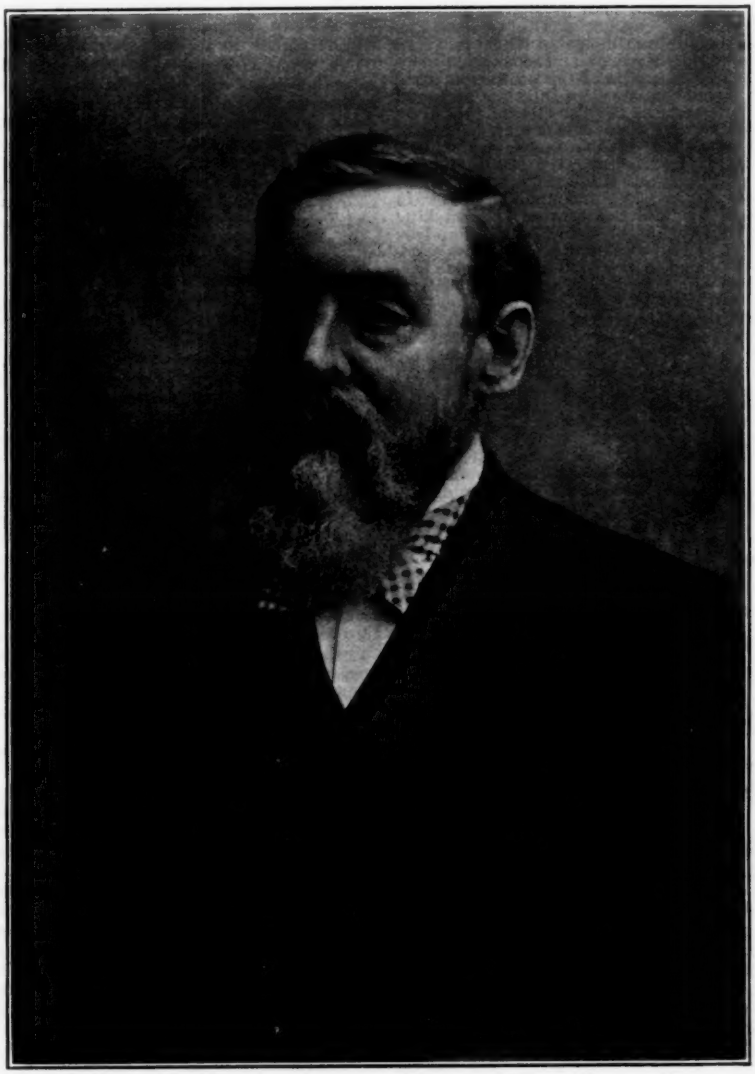
At the Royal College of Physicians of London he was Bradshaw lecturer in 1885 and Harveian orator in 1912, and the lectures of the man of 40 resemble the oration delivered 27 years later by revealing the same broad but keen intellect. The circumstances under which it fell to Goodhart's lot to deliver the Bradshaw lecture were peculiar. He was discharging the duty of his colleague, the late Dr. F. A. Mahomed, whose medical career was prematurely terminated in the previous autumn after appointment as Bradshaw lecturer, and Goodhart selected for his subject Morbid Arterial Tension, which happily embraced some of the best known work of Mahomed. He dealt with it from a widely philosophical view, but showed himself fortified with facts gained by a wide experience in the post-mortem room of Guy's Hospital, so that he was able to bring into clear relief the essential nature of the morbid processes. The lecture teemed with happy and homely illustrations; its language was pure and scholarly, and Goodhart's reputation was established among the leaders of his profession as a thinker, teacher, and practitioner. His Harveian oration delivered in 1912 had the eloquence and raciness that during the years which had elapsed he had taught the medical profession to

expect from him in his public utterances. The oration was a summary of the triumphs of pathology for the past 40 years, and the orator showed that as the necessary sequence of triumphs we must have modified valuations and even the disappearance from notice of things which throughout a whole previous decade might have appeared to be of the utmost importance. The rapid advance of pharmacology, resulting in the output of synthetic drugs, has enabled the scientific medical man to correlate with some exactness physiological action with structure, and Goodhart showed that the change of standpoint had been due almost entirely to the fact that biological science, of which medicine is a part, now follows the methods of physical science, directly questioning nature by experiment. The oration showed in a remarkable manner the mind of a busy man, able, while living the routine of a successful practitioner, to appreciate the relations of his particular work to science generally, and to assimilate the lessons of modern research.

His literary output was not very great considering his prominent professional position, but his contributions to the medical journals were fairly numerous and always very good. In addition to his book "Common Neuroses" he wrote the "Diseases of Children" in collaboration with Dr. G. F. Still, which remains in its tenth edition a standard work, and he was the author of the articles on influenza and asthma in Allbutt and Rolleston's "System of Medicine."

He became full physician to Guy's Hospital in 1887, being appointed consulting physician in 1899, in which year the University of Aberdeen gave him the honorary LL.D. In 1911 he was created a baronet.

He married in 1879 Emma, daughter of Mr. William Bennett, of Ashgrove, who died last year, and is succeeded in the baronetcy by the elder of his two sons, Mr. Ernest Frederic Goodhart, who is now acting as the honorary secretary to Princess Mary's Sailors' and Soldiers' Fund.



SIR JAMES FREDERIC GOODHART, BART., M.D.

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A former pupil and colleague writes:—

The death of Sir James Goodhart will bring to a veritable host of professional friends a keen sense of personal loss. That so busy a practitioner, who throughout his life scarcely ever allowed himself any social relaxations, should have attracted and held such an army of devoted friends can only be explained by his strikingly sympathetic personality. Large numbers of medical practitioners who had for Goodhart the warmest affection have never seen him or spoken to him except in formal consultations over their patients. The personal magnetism which gave him such exceptional powers as a physician and brought to him so large a share of the consulting practice of this country attached to him his professional colleagues as firmly as his patients. One is almost tempted to believe that many consultations with Goodhart were arranged as much to afford the practitioner the pleasure of the personal interview with the consultant as to secure for the patient the benefit of his professional advice. There was never any doubt, however, but that the patient would be pleased and satisfied too. He would come away confident that the kindly physician had had a full understanding of the case and a proper sympathy with the sick man's own peculiar point of view. No wonder that so universally popular a physician should at one time have been the busiest medical consultant in London. It must not, however, be thought that in laying such stress on Goodhart's personal charm of manner and sympathetic disposition it is suggested that it was upon these alone that his professional success depended. At the moment when one is feeling acutely the pang of separation caused by death it is those features in our lost friend upon which we prefer to dwell. A busy general practitioner with an intimate practical experience of most of the prominent consultants said the other day, "What struck me most about Goodhart as a consultant was that he was always right." The present writer, who was in constant touch with him in his work at Guy's Hospital, can well believe this to be true. When every fatal case comes to examination in the post-mortem room, as is the custom in hospital practice, the physician's power of accurate diagnosis is put to a severe test. Goodhart, who in his younger days as demonstrator of morbid anatomy had

an exceptionally large experience of post-mortem work, had later on a high reputation amongst his hospital colleagues for accurately forecasting the pathological changes that would be found in the cases for which he had been responsible during life. In his Harveian oration at the Royal College of Physicians of London in 1912 Goodhart spoke regretfully of "The Passing of Morbid Anatomy." There is no doubt that he laid the foundations of his own diagnostic skill by his industrious work in the dead-house. The Transactions of the Pathological Society from 1872 to 1886 give evidence by the numerous contributions they contain from his pen of the interest he took in this subject. It was in pathology perhaps more than in clinical medicine that Goodhart made his mark as an original observer. The addresses and lectures on clinical subjects which he delivered before numerous medical associations and societies in more recent years attracted the attention of the profession more on account of their sound common-sense and the profound knowledge of human nature they displayed, than by reasons of the original clinical observations they contained. Perhaps in clinical medicine Goodhart never quite saw the wood for the trees. In dealing with the individual patient nothing escaped his attention, and as a teacher his most valuable work was undoubtedly done in setting an example to his pupils of thorough painstaking investigation by full inquiry as to every function and by physical examination of every accessible organ. Less experienced students, accustomed to the spoon-feeding which has, alas, become so prominent a feature of medical education, were bored by the prolonged investigations, of which they often failed to grasp the import and missed the didactic methods whereby others of their teachers helped them to pass their examinations. For advanced students and for men already some time in practice a visit to the ward with Goodhart was always an experience full of profit and interest.

In tackling a troublesome patient Goodhart was no doubt at his best with a cross baby. His experience as physician to the Evelina Hospital for Sick Children provided him with his only temptation to become a specialist. For himself he hated the term specialist, and used to warn his juniors of the danger he early recognised in accepting the position, when a mother told him how she had at first resisted her doctor's advice to call him to her baby because she understood he was a specialist for children between the ages of six and seven.

In his relations with his patients, as with his friends, Goodhart was a confirmed optimist, and managed to inspire nearly all whom he met with his own hope and cheerfulness of spirit. He worked right up to the end, and to the very last was busy brightening the lives of others. The death of his wife in February of last year was a very severe blow to him, and at about the time of the first anniversary of the sad event the early and insidious symptoms were noticed of the fatal illness to which he succumbed on Sunday morning, May 28th, at the age of 70.

JOHN HAROLD, M.B., B.CH. R.U.I., M.R.C.S., L.R.C.P. LOND.

Dr. John Harold, who died in London on May 27th after a long illness, was born and educated in Dublin and studied medicine at Charing Cross and University College Hospitals, qualifying in 1889. From an earnest student he became a capable teacher, patient and clear in his demonstrations, which were free from the taint of mere empiricism. He gained a varied experience at Charing Cross Hospital, where he was in succession demonstrator of physiology, materia medica, and pathology, and medical registrar, and at Westminster Hospital, where he was clinical assistant in the skin department. This experience served him in good stead in the literary work to which he devoted most of his time. He was a careful and an accurate writer, and besides contributing freely to journals was senior assistant editor of "Quain's Dictionary of Medicine," himself contributing articles on such widely differing subjects as Euthanasia, Coccygodynia, Diabetes Insipidus, and Glycuronic Acid, and was the London collaborator of "International Clinics." Latterly he was physician to the St. John and St. Elizabeth Hospital at St. John's Wood.

DEATH OF MR. ALFRED GRACE, M.R.C.S. ENG., L.S.A.—Alfred Grace, whose death occurred on May 24th, was the second son of Henry Mills Grace and a brother of the three famous cricketing brothers, "W. G.," "G. F.," and "E. M." He was himself a fair cricketer as a boy, and he was famous in the hunting field. He took the M.R.C.S. Eng. in 1863 and the L.S.A. in 1864, and practised for many years at Chipping Sodbury. He was a late Surgeon-Lieutenant-Colonel, Royal Gloucestershire Hussars Yeomanry Cavalry.

Correspondence.

"Audi alteram partem."

TUBERCULOSIS AND THE WAR.

To the Editor of THE LANCET.

SIR,—The annotation in your issue of May 20th regarding discharge from the services owing to tuberculosis has drawn attention to one aspect of a very complex problem. Tuberculosis carries in its train low wages, unemployment, and poverty, and is thereby associated with the realities of our future national life. It is in the highest interest of the nation that we should try to solve this problem without delay, for if the solution be delayed until our great armies return it may well be that Swinburne's paradox may come true: "The lame and the halt and the blind are keen and mighty and fleet." The control and eradication of tuberculosis is only to be achieved by a policy based on knowledge and foresight, and neither political expediency nor sentimentality can have any influence on the incidence of a disease. Moreover, there are at least three aspects of the question which must be settled on their own merits. The amount of a pension comes first, for it is clear that, with the purchasing power of a sovereign reduced to eleven shillings, pensions which were adequate in the Napoleonic wars must be considerably augmented; then there are the men to whom these pensions should be awarded; and lastly, there is the treatment of tuberculosis on national lines.

For the purpose of stating a definite policy it is necessary to regard the tuberculous patients discharged from the services as falling into one or other of four large categories.

I. There may be men, free from tuberculous infection when they joined, who became infected and developed active disease in the services. Such patients would be entitled to a full pension for life, since their disability would be wholly due to the conditions of service.

II. Secondly, there are men who never suffered from active tuberculosis in civil life but who had a focus of latent infection, which developed, under the strain of active service, into declared aggressive disease. It is idle to speculate as to whether the man would have continued to enjoy his accustomed health had he remained in safe and comfortable employment in civil life. The benefit of the doubt should go to the patient, who ought to be pensioned on the ground that his disability was aggravated by active service.

III. Again, we have the men, who had been treated prior to the war for pulmonary tuberculosis at tuberculosis dispensaries or at sanatoriums, who regarded themselves as cured in so far as they were fit to earn their livelihood in civil life, and who joined the services when the call came in the belief that they were able to serve the country. Many of them have withstood the strain of war in a way which clearly demonstrates how much may be done for individual cases by scientific treatment. Others have broken down and have been discharged as unfit for further service. These men signed the attestation certificate in perfect good faith, "I hereby certify that to the best of my belief I have never suffered from ..... any other disease likely to render me unfit for His Majesty's service." Again, they were allowed to serve after undergoing a medical examination, and they joined from motives which it is well to recall even in the middle no less than at the beginning of war. In my view these men have a right to claim that their relapse was aggravated by conditions of service.

IV. Lastly, there were men with active disease which had rendered them unfit for employment in civil life who succeeded in joining the services. One such recruit joined one branch of the services three times in 18 months and when seen by me had been twice discharged. For two years before the war he had done no regular work, and at the time of attestation his name was on the waiting list for admission to a sanatorium in the north of England. During his time in the service he only appeared for duty on three occasions and went "sick" each time. The remainder of his service was spent in hospitals. When I asked him why he had joined again after having been discharged, he replied with engaging frankness, "It's easier than working at the docks." I should add that this example is not intended to suggest any wholesale criticism of those civilian

doctors through whose hands these patients passed into the services. At the beginning of the war the numbers awaiting medical examination were large and the time for examination was limited. Moreover, the call for men was urgent and the total supply was limited. Many a doctor must have had in the back of his mind the idea of how many men he could pass rather than how many he could exclude in the interest of the country. However that may be, only a vain sentimentalist would suggest that cases in this last group are entitled to any pension from the State.

How, then, may we separate the wheat from the chaff? It has been suggested that the records of the compulsory notification of pulmonary tuberculosis in the hands of the public health authorities should be utilised for this purpose, the idea being that cases notified before the war should not be pensioned, while cases not notified would receive a pension. The objections to this plan are so grave that I hope it will never be seriously considered. A notification certificate is a private and confidential document, given on the understanding that no action based on the information granted will affect the patient, except such interference as is already sanctioned by law. The use of information given on that understanding, even if only passed from one Government department to another for the purpose of annulling an unjust claim, strikes at the basis of privileged confidence between patient and physician. That is a necessary privilege which our profession has always guarded with jealousy, for it is older than the civilisation in which we live.

There are other objections, not less serious, to the above proposal. It would be an absolute handicap on early and accurate diagnosis. In civil practice it is a commonplace that many patients do not seek advice until the disease is well advanced, so advanced, indeed, that very often little can be done in the matter of curative treatment. If the early recognition of pulmonary tuberculosis comes to be associated by large numbers of the community with the loss of financial recognition for services in the war it can only lead to further concealment and make-believe on the part of the ignorant. Again, this scheme would be most unjust to the men in Group III., who would be refused pensions without any inquiry into the particulars of their case. Lastly, there would be a number of previously undiagnosed cases in Group IV. to whom pensions would be granted.

I suggest that the Insurance Act provides for a method of deciding these claims, whereby individual injustice will be reduced to a minimum. The procedure is quite simple and straightforward. Let every man invalided from the services, who claims a pension on account of tuberculosis contracted or aggravated by the conditions of service, be asked to produce evidence from his approved society or from his insurance books, that for six months prior to attestation he was earning his living in civil life, or if unemployed, that he was not in receipt of sick benefit on account of tuberculosis. To all who satisfied this test, pensions for life might be granted with justice.—I am, Sir, yours faithfully,

May 22nd, 1916. HALLIDAY SUTHERLAND.

A NEW DRESSING FOR SKIN-GRAFTS.

To the Editor of THE LANCET.

SIR,—The method of grafting propounded by Thiersch has hitherto been in general use in cases where it is impossible to cover large surfaces of cuticle by means of additional cuts, strips, and seams. It is therefore frequently resorted to by the practical surgeon. Unfortunately, when it becomes necessary to cover more extensive granulated surfaces, such as those left after a burn, even modern aseptic methods do not always ensure success, and it is not unusual for suppuration to be set up under the dressing which destroys the vitality of the grafts and causes them to mortify. Such occurrences are all the more disappointing as the grafts are taken from a healthy part of the patient, who not only gains nothing by the unsuccessful grafting but remains with an additional surface wound to heal. Not only do the generally accepted methods of preparation of the wounded surface for grafting and the successful fixation of the particles of graft have an enormous influence on the success of the operation, but the scientific dressing of the wound after grafting is also of importance. The two essentials—(1) the proper fixation of the grafts, and (2) such perfect cleanliness of the wound surface as to prevent suppuration—constitute the extreme difficulty of the task, for it is almost impossible to remove the dressing without disturbing the grafts, and without doing so the absence of discharge cannot be determined. To prevent adhesion of the grafts to the dressing they have been protected by strips of silver-foil, gold-beater's skin, or other substances applied in overlapping layers, or in pieces perforated to allow of drainage. This method, although perfect for fixing the grafts, has the important disadvantage of encouraging the wounded surface to discharge, with consequent accumulation of pus under an impervious cover, thereby clogging the particles and preventing their growth. This I have found to account for most of my failures.

To prevent the accumulation of discharge under the protective dressing I decided, therefore, to use a coarse-meshed metallic netting to fix the grafts, and over that I placed a moist dressing of saline. Unfortunately, I was unable, owing to the war, to procure a suitable silver net, but I found that the ordinary large-meshed canvas supplied for ladies' wool-work answered all the requirements. To obtain the necessary elasticity and pliability and prevent the canvas from absorbing pus into its meshes, which might render the wounded surfaces septic, the canvas was starched and soaked in melted paraffin. The canvas thus treated was then rolled on a glass cylinder, wrapped in waxed paper, and sterilised, during which process the superfluous paraffin was absorbed and a firm, pliable, non-absorbent netting obtained, which proved an excellent covering for Thiersch's grafts. Pieces of skin were transplanted direct on to a granulated surface previously prepared by daily dressings. This dressing consisted of several layers of sterilised gauze soaked in saline, over which was placed dry wood-wool (lignine) bandaged on without either oilskin or waxed paper. On the wound when grafted is placed the net or canvas which on becoming warmed by the heat of the body at once adheres closely to the surface. The net should be larger than the wound and the edges securely strapped down with strips of adhesive plaster. Over this is then placed a dressing of gauze soaked in saline covered with lignine without either oilskin or waxed paper and securely bandaged. After two days the dressing, as far as the net can easily be removed as the gauze scarcely adheres to the canvas. Slightly moistening the dressing will help to remove it. The net remains in place for eight days, the dressing is changed daily, and the surface of the canvas cleansed from discharge with saline or hydrogen peroxide. On the eighth day the canvas is removed, when the grafts will be found firmly adherent and beginning to spread over the periphery. The certainty of success under these conditions is very great. Grafting by this method has been practised by me and my assistants in more than 20 wounds of more than a hands-breadth without losing a single graft. The encouraging results prompt me to publish these observations.

I am, Sir, yours faithfully,

A. N. HAGMANN,
Professor at the Moscow Women's Surgical College.

THE HEROES OF WITTENBERG.

To the Editor of THE LANCET.

SIR,—Many of us must feel deeply that some memorial should be put to the memory of the three brave doctors who died at Wittenberg Camp, of typhus, while doing their utmost to alleviate the terrible suffering and misery of which we have all read, with a thrill of horror, from the reports of Major Priestley, Captain Vidal, and Captain Lauder.

The King has voiced all our wishes by the honours he has graciously bestowed on these gallant men who mercifully survived, and we now feel that the names of those who died—Major W. B. Fry, Captain A. A. Sutcliffe, and Captain S. Field, all officers in the Royal Army Medical Corps—should be remembered in the years to come.

All will agree that, if possible, the memorial should take the form of helping to alleviate suffering and do some permanent good, but that must necessarily depend on the amount received.

I will gladly receive and acknowledge all contributions, however small, for I feel all men and women will wish to join in honouring the memory of such men.

I am, Sir, yours faithfully,

CONSTANCE PARKER OF WADDINGTON.
Aldworth, Haslemere, Surrey, May, 1916.

THE HORRORS OF WITTENBERG CAMP.

To the Editor of THE LANCET.

SIR,—When you were good enough to publish in your issue of April 22nd a letter from me upon the above subject my intention was to bring a resolution before the annual meeting of the Laryngological Section of the Royal Society of Medicine requesting the Council of the society to delete the names of all Corresponding Members of German birth from the roll of the section as an outward expression of disgust with the treatment, or rather lack of treatment, meted out to our helpless and fever-stricken prisoners of war at the hands of their professional confrères.

A resolution to this effect was sent by me to the honorary secretary of the section, but on submission to the President of the society was held by him to be *ultra vires*. I accordingly modified the original and sent a fresh resolution to the secretary of the Otological Section for discussion at the annual meeting on May 19th, couched in the following terms:—

> That the members of the Otological Section of the Royal Society of Medicine desire to place on record their sense of abhorrence and disgust at the conduct of Oberstabsarzt Dr. Aschenbach and his colleagues in their abandonment of British prisoners of war during the epidemic of typhus fever at the Wittenberg Prisoners of War Camp, and request the Council of the Royal Society of Medicine to take such steps as they in their judgment may think fit to emphasise the feelings of indignation shared by members of the British medical profession.

This resolution was accepted as in order by the President of the Section, Dr. Albert Gray, of Glasgow, was proposed by myself, seconded by Mr. Richard Lake, and supported by Dr. Watson Williams. After a somewhat prolonged and pointless discussion the resolution was put to the meeting and lost, 9 members voting in its favour, 13 against.

The majority of the members present at the annual meeting of the Otological Section were therefore in favour of making *no protest whatever* against German barbarity to those typhus-stricken prisoners of war who, in their day of health and vigour, had done what lay in their power to defend our hearths and home. *Hinc illæ lachrymæ.*

I am, Sir, yours faithfully,

Manchester, May 28th, 1916. WILLIAM MILLIGAN.

CIRRHOSIS OF MESENTERY.

To the Editor of THE LANCET.

SIR,—I have had some difficulty in finding an apposite term with which to describe some conditions which I have encountered when operating in the abdomen of alcoholic and fatty subjects. The cases could be classified into: 1. Those in association with hepatic cirrhosis. I have from time to time observed remarkable tumefaction and induration of the great omentum, which at first glance suggested malignant infiltration, but in which the history, general condition, and absence of nodules, with the coexistence of a contracted liver, dispelled such a suspicion. On section only ordinary fibrous tissue formation was noted. In other words, what once was a delicate fatty apron had become converted into a diffused block of cirrhosed material. 2. Those displaying the ominous alcoholic girdle—a ring of dilated superficial veins over the lower thorax. In these I have often noted that when an attempt was made to ligate peritoneal adhesions the ligatures easily cut, or indeed broke, through, and in several instances I have had a similar experience with the meso-appendix prior to appendicectomy. Section invariably showed marked thickening with distinct fibrous changes. Furthermore, I have in these cases frequently met with distinct fibrous degeneration (cirrhosis) of the bowel wall, which readily broke away on insertion of sutures to cover in the appendical stump. 3. Those occurring in fatty persons, women and alcoholics in particular, in whom there was a history of ill-defined colicky pains, without any obvious organic lesions. This type of case has often caused me much diagnostic perplexity, and on abdominal exploration I have often found nothing to account for the symptoms except the partial conversion of large appendices epiploicæ into dragging masses of fibrous tissue. The size on section of the fibrous strands which permeate some of these lumps was noteworthy, and in some unquestionable victims of alcohol I have seen a complete cirrhotic transformation of these strands.

In many of these patients definite evidence of pericolitis was present—viz., extensive adhesions in the cæcal, ascending colon and sigmoid regions. In some there had been a definite history of spasmodic pain and discomfort, colitis, constipation, or gastritis. Separation of intestinal adhesions in alcoholic individuals is a futile procedure, as they always re-form. Although we are taught that fat stores up excess of alcohol, I am inclined to attribute this form of cirrhosis to microbic infection or to bacterial toxins passing from within outwards through the wall of the intestine by the lymphatics. The infection itself has been caused by prolonged irritation of the mucous membrane due to a liberal intake of alcohol, or in fat women to the fæcal accumulation in their sluggish colons. I have also observed this cirrhosis of the mesentery in conjunction with glycosuria, suggesting that the fatty tissue in the pancreas had become similarly infected and cirrhosed so as to interfere with the function of the islands of Langerhans.—I am, Sir, yours faithfully,

JOHN O'CONOR, M.A., M.D. T.C.D.,
Senior Medical Officer, British Hospital, Buenos Aires.

BOGUS MEDICAL DEGREES BILL FOR INDIA.

To the Editor of THE LANCET.

SIR,—With regard to your correspondent's reference to the Bogus Medical Degrees Bill for India that appeared in your issue of May 13th, Sir Pardey Lukis is quite right in his belief that a very large consensus of opinion is in favour of the principle of the Bill. The few criticisms are only made with regard to details. For instance, I can quite understand the attitude of the Bombay Medical Union which at its annual meeting held an open mind concerning the Government recognition of the Yunani (Mussalman) and Ayurvedic (Hindu) systems of medicine. While in India about two years ago I was much impressed with the good work carried on by many Ayurvedic physicians, some of whom are qualified men with medical diplomas from Indian Universities. The Ayurvedic colleges in India are training men in anatomy, physiology, pharmacy, and medicine, and are doing original work by translating Sanscrit medical works and reinterpreting them in the light of modern medical science. Any indigenous attempt to revitalise Indian medicine by European thought ought to be welcomed by all well-wishers of India. For it is only by this way that the millions of the Indian people will take kindly to Western medicine, and thus a lasting union between India and England be made. Therefore I sincerely hope that the work of the Ayurvedic colleges may find some recognition in the Bill now before the Indian Government.

I am, Sir, yours faithfully,

Wells, May 21st, 1916. C. MUTHU.

A MINOR SYMPTOM OF EXOPHTHALMIC GOITRE.

To the Editor of THE LANCET.

SIR,—I should like to draw attention to a peculiarity exhibited by some patients who are suffering from exophthalmic goitre—namely, a tendency to wash their hands with a frequency which is out of all proportion to the demands of ordinary cleanliness. The hyperidrosis of the hands, and especially of the palms, usually associated with the disease in question is, no doubt, responsible for this phenomenon in a certain number of cases, but, on the other hand, it has been found in well-marked cases of exophthalmic goitre in which excessive sweating of the palms did not appear to be present, and in which the patients themselves were entirely unconscious of its presence, and only complained, as far as their hands were concerned, of a feeling as if the latter were "always dirty." In cases of this type the tendency to wash the hands very frequently may be partly in the nature of a neurosis, and partly a result of chronic discomfort due to slight palmar hyperidrosis of which the patient is not actively conscious.

The interest attaching to this symptom lies in the fact that it sometimes appears in comparatively early cases; in one case of well-marked exophthalmic goitre it was found upon inquiry that a desire to wash the hands very frequently constituted one of the first departures from the normal which the patient had noticed. The writer has found the symptom in question present to a greater or lesser degree in seven undoubted cases of exophthalmic goitre—all in women—and also in a woman suffering from nodular headache who

had a slightly enlarged thyroid gland, unassociated, however, with any further symptoms of exophthalmic goitre.

I am, Sir, yours faithfully,

RICHARD J. CYRIAX, M.R.C.S., L.R.C.P.

Welbeck-street, W., May 22nd, 1916.

THE RESPONSIBILITY OF MEDICAL OFFICERS IN CHARGE OF PRISONERS.

To the Editor of THE LANCET.

SIR,—I, like many other officers of the Royal Army Medical Corps, have lately been in charge of prisoners, and I suggest that THE LANCET would do well to instruct us in our duties. The questions involved are important, and one's ordinary superiors appear to have no definite conception of the ethical and juridical principles involved. Let me state the problem.

1. One is dealing with a lot of men and women, not subject to military law, not convicted of any crime, and of whom the highest authority has stated that some are innocent and arrested by mistake.

2. The medical officer would presumably be held primarily responsible for any hurt which any of these prisoners suffered in health from insanitary surroundings, overcrowding, defects of food or clothing, &c., consequent on their confinement.

3. How far the operations of martial law would protect him from subsequent civil action seems doubtful. Certainly he could be called on to justify his actions.

4. Is there an implied responsibility, arising out of the office of physician to the prisoners, to ascertain that each one of them is fit for detention or for transportation?

5. If a prisoner be decided by the authorities to have been improperly arrested, and an order for his discharge be made, but meanwhile he dies as a result of the insanitary conditions of his place of detention or of the voyage of transportation, can the medical officer be held civilly responsible?

6. In such a case as above where the person, who dies on the journey or loses his mind during detention, is not a person subject to military law, if the medical officer be charged in the civil court, is it any answer to say that his official superior did not think the patient unfit for the journey or the place overcrowded or insanitary?

7. The point at issue is, How can the medical officer reconcile his responsibility to the patient who is not under military law with obedience to his military superior?

I am, Sir, yours faithfully,

Dublin, May 25th, 1916. LIEUTENANT, R.A.M.C.

*** Our correspondent will find, we believe, that no military orders will compel him to do violence to his ethical conceptions.—ED. L.

Hospital Saturday was observed at Portsmouth on May 27th, when £625 11*s.* 6*d.* were collected for the hospital and other local medical charities. Since the inauguration of this Fund in 1876 the sum of £29,986 has been received from this source.

CONFERENCE ON SANITARY ADMINISTRATION UNDER WAR CONDITIONS.—At the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W., a conference on the above subject will take place on Friday and Saturday next, June 9th and 10th. The conference will be opened by the Lord Mayor of London, and at the morning session of the first day Mr. H. Percy Boulnois, M.Inst.C.E., and Dr. James Wheatley, medical officer of health to the Shropshire County Council, will open a discussion on the Maintenance of the Standard of Municipal Sanitation during the Continuance of War Conditions, the Mayor of Westminster presiding. At the morning session of the second day Dr. A. B. Ritchie, medical officer to the Manchester Education Committee, will open a discussion on the Administration of the Mental Deficiency Act from the Social and Educational Standpoint, Mr. Leslie Scott, K.C., M.P., presiding. The afternoon sessions will be devoted to visits to various municipal and commercial institutions, as well as to the King George Hospital and King's College Hospital. No charge will be made for the Conference ticket, but a fee of 5*s.* will be asked for proofs of the papers opening the discussions, together with the subsequent report of the proceedings. For further particulars application should be made to the secretary at the Institute.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Killed.

Captain D. Waterston, Canadian A.M.C., attached to the Canadian Infantry, received his medical education at McGill University, Montreal, and qualified in 1914.

Lieutenant-Colonial G. O. Moorhead, Commanding Officer, Nyasaland Contingent, Union Expeditionary Force, was a medical man in practice in Central Africa, which he gave up on the outbreak of war and joined the Union Defence Force as a combatant officer, having previously seen service in the South African War.

Died.

Lieutenant H. J. S. Kimbell, R.A.M.C., was a student of St. Bartholomew's Hospital, London, and qualified in 1907. He held appointments at the West End Hospital for Nervous Diseases, the Hospital for Women, Soho, the City of London Lying-in Hospital, and the Bedford County Hospital, and was recently in charge of the Preston Hall Hospital, Maidstone. He joined the R.A.M.C. in August, 1915.

Wounded.

Captain J. H. Aikman, R.A.M.C.

Captain G. A. E. Argo, R.A.M.C.

Previously reported Missing, now reported Prisoners.

Lieutenant J. Brown, R.A.M.C.

Captain W. R. O'Farrell, R.A.M.C.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Lieutenant-Colonel G. O. Moorhead, Union Expeditionary Force, eldest son of the late Brigade-Surgeon G. A. Moorhead.

Second Lieutenant C. C. Howard, only son of Dr. J. A. Howard, of Upper Norwood.

Lieutenant G. D. Grune, Royal Field Artillery, attached to the Royal Flying Corps, son of Captain E. Grune, R.A.M.C., of Southwick, Sussex.

THE HONOURS LIST.

The following awards to medical officers for gallantry and devotion to duty in the field are announced:—

Distinguished Service Order.

Temporary Captain Thomas Lewis Ingram, R.A.M.C. (attached 1st Battalion Shropshire Light Infantry).

For conspicuous gallantry and devotion to duty. He collected and attended to the wounded under very heavy fire, and set a splendid example. Since the commencement of the war he has been conspicuous on all occasions for his personal bravery.

Military Cross.

Captain James Couper Brash, 10th Field Ambulance, R.A.M.C. (Special Reserve).

For conspicuous gallantry and devotion to duty. He went to an artillery dug-out which had received a direct hit, and, assisted by two men, extricated the wounded and administered first aid under heavy shell fire.

Captain Henry Percival Hart, R.A.M.C.

For conspicuous gallantry and devotion to duty when, although himself wounded, he went out, dressed, and brought into safety the wounded under heavy shell fire.

Temporary Captain Philip Randal Woodhouse, R.A.M.C. (attached 1st Battalion Irish Guards).

For conspicuous gallantry and devotion to duty. He tended the wounded under heavy shell fire, and, though himself wounded, continued his work. On another occasion he went across the open under shell fire to attend to the wounded.

Temporary Lieutenant William John Knight, 73rd Field Ambulance, R.A.M.C.

For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station under heavy shell fire. He continued to attend the wounded with great coolness.

MENTIONED IN DESPATCHES.

In a despatch from General Sir Douglas Haig, G.C.B., dated May 19th, dealing with recent operations of the British Army in France, the following references to the medical services and to chemical research are made :—

All branches of the medical services deserve the highest commendation for the successful work done by them, both at the front and on the lines of communication. The sick-rate has been consistently low, there has been no serious epidemic, and enteric fever, the bane of armies in the past, has almost completely disappeared owing to preventive measures energetically carried out. The results of exposure incidental to trench warfare during the winter months were to a very great extent kept in check by careful application of the precautions recommended and taught by regimental medical officers. The wounded have been promptly and efficiently dealt with, and their evacuation to the base has been rapidly accomplished. The close coöperation which has existed between the officers of the regular medical service of the army and those members of the civil medical profession who have patriotically given their valuable services to the army, has largely contributed to the prevention of disease and to the successful treatment and comfort of the sick and wounded. As part of the medical services, the Canadian Army Medical Corps has displayed marked efficiency and devotion to duty.

The valuable nature of the work performed by the officers of the Central Laboratory and the chemical advisers with the armies in investigations into the nature of the gases and other new substances used in hostile attacks, and in devising and perfecting means of protecting our troops against them, is deserving of recognition. The efforts of these officers materially contributed to the failure of the Germans in their attack of 19th December, 1915, as well as in the various gas attacks since made.

In despatches from Brigadier-General Barnardiston, M.V.O., dated October and November, 1914, but published only this week, dealing with the operations, in conjunction with the Japanese army and navy, against the German colony of Tsingtau (Kiao-chau), the names of the following medical officers are mentioned as deserving of special notice for their services:—

Fleet-Surgeon Clarke. | Major J. A. Hartigan, R.A.M.C.
Captain G. H. Dive, R.A.M.C.

In despatches from Major-General Sir C. Dobell and from General Cunliffe, dealing with the operations of the Cameroon Expedition, the names of the following medical officers are mentioned :—

Major E. B. Booth, D.S.O., R.A.M.C.
Captain T. M. R. Leonard, West African Medical Staff.
Lieutenant-Colonel J. C. B. Statham, C.M.G., R.A.M.C.
West African Medical Staff: J. C. M. Bailey, W. S. Clark, W. E. S. Digby, W. H. Peacock, T. H. Suffern, C. E. S. Watson, and R. F. Williams.

CENTRAL MEDICAL WAR COMMITTEE.

A meeting of the Central Medical War Committee was held on May 31st, when the position of medical men in relation to the Military Service Acts was fully considered. The official recognition of the Committee and of the Committee of Reference of the English Royal Colleges, and the Scottish Medical Service Emergency Committee was pointed out, this position having been brought about by the assistance of four great departments, the Royal Army Medical Corps, the General Medical Council, the Local Government Board, and the National Insurance Commission. The task now before the Central Medical War Committee is to enumerate and classify all the medical men concerned, under the Military Acts, the age-limit here being 41, or under the enrolment scheme, where the age-limit is 45. In this task and the work which follows the Committee will receive expert legal and clerical assistance from the National Insurance Commission.

WORK AT A FIELD AMBULANCE.

Lieutenant-Colonel G. J. Stoney Archer, R.A.M.C., who has been in charge of field ambulances in Gallipoli and in France since the outbreak of war, sends the following scheme of duties devolving upon the personnel of the ambulance when a batch of wounded is expected or arrives.

For the purposes of the scheme it is assumed that the tent subdivision of B and the section bearers of A and B are at the advanced dressing station, and the tent subdivision of A is open at headquarters, with tent and bearer subdivisions of C assisting and in reserve, as this will probably be the best distribution of the field ambulance when in action. The following is the scheme :—

Distribution of Sections.

1. *Dispenser.*—(*a*) The dispenser, Sergeant M——, under Captain P——'s instructions, will have dressings, instruments, &c., sterilised and ready. (*b*) He will have a solution of morphia (hypodermic) available in two small bottles of convenient size, also antitetanic serum and syringe for same, also strychnine, pituitary extract, chloroform, Skinner's mask, &c.

2. *Cook.*—The cook will have plenty of boiling water ready for making lotions, tea, milk, or bovril, &c. Lieutenant and Quartermaster H—— will supply him with necessary stores.

3. *Sergeant-Major.*—(*a*) The Sergeant-Major will inform all the medical officers, who will at once come to the receiving-room and be available for duty. (*b*) He will at once parade all available N.C.O.'s and men at headquarters, with the exception of the clerks and sanitary squad. The bearers will fall in with their slings (see note (4) on the scheme). (*c*) The Sergeant-Major will superintend the bearers bringing in or taking out cases to the motor ambulance convoy. (*d*) He will detail two or more orderlies, whose sole duty will be to go round continuously to every wounded man and ask him if he would like a drink of water, tea, bovril, or milk, or a cigarette, and to give him what he asks for unless there are two red lines drawn across the label on his coat (see para. 4 *c*.). The orderlies will also ask each wounded man if they can do anything to make him more comfortable, such as arranging a stretcher pillow or coat under his head or other part of his body as required. They will at once report to a medical officer if any man seems to require morphia owing to being in pain. They will also see that those who are cold get hot-water bottles, sufficient blankets, &c. (*e*) The Sergeant-Major will see that the nursing orderlies are in their wards, and assisted by other men brought in from the bearers. (*f*) He will detail an orderly to be attached to each medical officer as his personal assistant.

4. *Officers.*—(*a*) The officers present would be Lieutenant-Colonel A——, Captain P——, and Lieutenant and Quartermaster H—— (A Section), and Captain S ——, Lieutenant M——, and Lieutenant H—— (C Section). (*b*) Lieutenant H—— and Lieutenant M—— will be at Captain P——'s disposal and assist him with the dressings, &c. (*c*) Captain S—— will see each case as it arrives, and arrange that each wounded man is inspected at once. He will select those who require immediate attention, and will mark them by drawing one red pencil line across the label on their coat. Any case which is not to have liquid or food of any sort by the mouth (e.g., perforating intestinal wounds, &c.) will have two red lines drawn across their label with a red pencil (as a cheque is crossed). (*d*) Chest, abdominal, moribund, and slight cases will be arranged systematically in separate places as far as possible. (*e*) Lung cases, *after* they have been dressed, will have a blue bandage tied on a conspicuous part of their clothes, abdominal cases a red bandage, and all other cases a white bandage. (*f*) Cases that a medical officer dresses and considers will probably not require dressing again that day should have this recorded on their tally, in addition to the usual instructions which are put on the tally, such as amount of morphia given, antitetanic inoculation, &c. (*g*) Lieutenant and Quartermaster H —— will superintend the pack-storekeeper's work and be responsible that a plentiful supply of dressings is available.

5. *Admission and Discharge Sergeant.*—(*a*) The admission and discharge sergeant will keep on charge two red pencils for use as mentioned in para. 4 (*c*), 100 cigarettes for issue to patients (para. 3 (*d*)), and 100 red, 100 blue, and 300 white bandages, about a foot long, for use as mentioned in para. 4 (*c*). (*b*) The admission and discharge sergeant of C Section will be present with his book, and assist if many cases come in quickly. (*c*) Each clerk will have in his possession 100 Army Forms W. 3210 pinned together and be supplied with pins for pinning same on to patients' tunics.

6. *Packstore.*—(*a*) The packstore-keeper of C Section will assist if required in packstore work. (*b*) A reliable N.C.O. (working with the packstore-keeper) will be detailed to check and verify the personal kit and equipment of officers on admission or transfer, or on discharge.

The N.C.O. detailed will take particular care to inspect and note whether field-glasses and revolvers are contained in their cases, and will carry out instructions laid down in Circular D.G.M.S. No 26/2,105/15 where it applies, that is in case of death or where an officer is unconscious and has no servant in charge of his kit, &c.

7. *Distribution of personnel.*—Dispensers: Sergeant M—— (A Section), assisted by Sergeant B—— (B Section). Dispenser's orderlies: Private D—— and Private O——. Officers' orderlies: To Lieutenant-Colonel A——, Lance-Corporal N——; to Captain S——, Private L——; to Captain P——, Private A——, to Lieutenant M——, Private C——, to Lieutenant H——, Private B——. Orderlies to attend to wounded *waiting* to be dressed: Privates C—— and C——. Orderlies to attend to wounded after being dressed and removal: Privates B—— and H——.

Notes on Above Scheme.

1. The above scheme will be carried out without notice by labelling bearers of C Section with supposed serious injuries, and the C.O. expects that when he gives a signal for this to be done officers and other ranks will fall into their place and carry out the above duties automatically. 2. For the information of all concerned a copy of this scheme will be posted up in the orderly room, the admission room, and in a convenient place where all ranks can see it. 3. The officers, N.C.O.'s, and men above mentioned will, of course, vary from time to time, depending on the officers, N.C.O.'s, and men who may be absent at the advanced dressing station, &c., but this will not in any way interfere with the general working of the scheme, the commanding officer making the necessary alteration in actual personnel immediately the occasion arises. 4. A stretcher sling has now been given to each stretcher-bearer in this field ambulance; it is marked with his number and name, and he is responsible for it as part of his equipment. When the slings were left with the stretchers it was found that they were being continually lost and not available when required. This plan has a further advantage that the bearer always has a sling fitted and padded to his own size and liking. 5. The commanding officer will hold all ranks responsible for being thoroughly acquainted with the above scheme.

CRAIGLEITH HOSPITAL CHRONICLE.—Our contemporary the *Craigleith Hospital Chronicle*, the profits of which are devoted to extra comforts for the sick and wounded, has among its May–June contents an interesting illustrated account of Easter in Russia by Jean d'Auvergne and a short history of the Regalia of Scotland. The reproduction of a portrait of Surgeon-General J. C. Culling, the new D.D.M.S. of the Scottish Command, forms a frontispiece. Copies of the magazine can be obtained from the 2nd Scottish General Hospital, Craigleith, Edinburgh, price 6*d*.

KEIGHLEY BASE HOSPITAL.—The new military base hospital at Morton Banks, Keighley, Yorkshire, which will afford accommodation for about 400 cases, will be opened in four or five weeks' time. Owing to the energetic action of the Mayor of Keighley, £10,200 have been collected in little over a month, a sum which will cover the cost of converting the fever hospital and adding other buildings which will constitute the new military structure.

BATHS FOR EAU COURANTE TREATMENT AT BRIGHTON.—Baths for this treatment of injuries of the arm and leg have been installed in connexion with the Red Cross Auxiliary Hospitals for Officers at Brighton. The apparatus installation is the generous gift of H.R.H. the Princess Royal.

MEDICAL MEN AND WAR SERVICE.—A meeting of medical men was recently held at Plymouth, about 30 being present, the majority of whom enrolled for military service.

PRIZE ESSAY ON MATERNITY AND CHILD WELFARE.—The Royal Sanitary Institute is offering a medal and a prize of £50 for the best thesis on a scheme for maternity and child welfare work suitable for adoption by local authorities. The conditions may be obtained from the Secretary, 90, Buckingham Palace-road, London, S.W.

Medical News.

UNIVERSITY OF LONDON.—At the Third (M.B., B.S.) Examination for medical degrees held recently the following candidates were successful:—

Louis Abel Celestin, University College Hospital; William Maurice Crombie, St. Thomas's Hospital; Christopher Ignatius de Silva, University College Hospital; John Alfred Wylde Ebden, Westminster Hospital; David Sydney Graves, Guy's Hospital; Innes Hope Pearse, London (Royal Free Hospital) School of Medicine for Women; *†Leonard George Phillips, B.Sc., Middlesex Hospital; Lloyd Desbat Phillips, University College Hospital; Emma Christine Pillman, London (Royal Free Hospital) School of Medicine for Women; Arthur Lisle Punch, Guy's Hospital; Leslie Norman Reece, St. Thomas's Hospital; *†‡Stanley Ritson, B.Sc. (University Medal), King's College Hospital; Douglas George Clutsam Tasker, University of Bristol; James William Tudor Thomas, Middlesex Hospital and University College, Cardiff; Arthur Henry Turner, University of Liverpool; Sibyl Ibbetson Welsh, London (Royal Free Hospital) School of Medicine for Women; and Arthur Wai-tak Woo, London Hospital.

* Distinguished in Medicine. † Distinguished in Surgery.
‡ Distinguished in Midwifery and Diseases of Women.

The following candidates have passed in one of the two groups of subjects:—

Group I.—Grace Mary Griffith, University College, Cardiff, and University of Leeds; Cyril Eaton Petley and Basil Sampson, Guy's Hospital; Alfred George Simmins, Guy's and Westminster Hospitals; and Eric Clarence Spaar, B.A., Ceylon Medical College and St. Bartholomew's Hospital.

Group II.—Arthur Wilfrid Adams, University of Bristol; Frederic Vivian Bevan-Brown, Guy's Hospital; Robert Malcolm Dannatt, St. Bartholomew's Hospital; Walter Henry Lloyd, Middlesex Hospital; and Violet Ione Russell, London (Royal Free Hospital) School of Medicine for Women.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

THE annual general meeting of supporters of the South London Hospital for Women, Clapham Common, S.W., will be held at 16, Carlton House-terrace, S.W., by permission of Lady Cowdray, on Thursday next, June 8th, at 3.15 P.M., the Marchioness of Londonderry presiding. Lady Frances Balfour, Sir Frederick Treves, and Mr. Pett Ridge are announced to speak.

CHADWICK LECTURES ON MEASLES.—The first of the two Chadwick lectures on measles, delivered by Dr. H. J. Cates, medical officer of health of St. Helens, Lancs., was presided over by Sir William J. Collins, chairman of the Chadwick Trustees. Sir William Collins stated that in London during the period 1905–09 measles killed more children than all the ordinary notifiable diseases put together. Nearly all the deaths from measles were of children under the age of 5 years. In the case of measles, unlike other notifiable diseases, notification could not be directed to stamping out the disease altogether nor to the removal of most of the cases to hospital. Home nursing therefore became all-important, although it might well be supplemented by voluntary hospital provision. Insanitation was mainly responsible for the high fatality in certain places and at certain times. The deadly epidemic in the Fiji Islands in 1874 was due, not as was often said to the disease attacking a virgin soil, but to the gross neglect of the sick and want of ordinary care and nourishment. At the present time we ought not to relax ordinary sanitation and leave refuse undealt with and streets unwatered or we should pay the penalty of epidemic disease and high infant mortality. Dr. Cates dealt with the history of the disease, describing how epidemics of measles in the past had destroyed nearly a quarter of the population of a district. In England and Wales 10,000 children died from the disease every year, and at least an equal number were left permanently disabled. Since the commencement of war there had been serious outbreaks of measles amongst the troops in several areas. The occurrence of an epidemic could be foretold with almost mathematical certainty, and there was therefore little excuse for sanitary authorities to allow an outbreak to find them unprepared. In clean homes and in good surroundings healthy children rarely failed to make a good recovery; on the other hand, the death-rate from measles among infants of unskilled labourers was nearly four times as great as that of children of the upper and middle classes. The main cause of death in measles was infection set up by an unhealthy condition of the mouth, nose, and throat. A child whose playground was the unswept street, whose idea of hide-and-seek was confined to a romp in an alley in which filth and garbage was lying, whose voyage of discovery was limited to a search for cigarette cards among the contents of ashpits, was unlikely to possess a healthy nose and throat. Dr. Cates appealed for the general extension of treatment to children under school age, and urged that the plea of economy should not be allowed to jeopardise the health of the nation.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Military Service Act.

THE Military Service Act which introduces compulsory military service for all male British subjects ordinarily resident in Great Britain between the ages of 18 and 41 has received the Royal assent. It embodies a scheme of professional committees to deal with exemptions which may be granted to medical men.

Highlands and Islands Medical Service Board.

The report of the Highlands and Islands Medical Service Board for the year 1915 has been presented to Parliament and issued as a Blue-book. It states that, as indicated in their first report, the Board had in contemplation the constitution of committees for the local administration of grants from the fund, in the various districts in their area, composed of representatives of all the public bodies on whom Parliament had placed responsibility for dealing with matters affecting the health of the individual or of the community. A scheme providing for the election of the committees, and setting forth the powers and duties to be entrusted to them, was placed before the Secretary for Scotland for his consideration in July, 1914. A further scheme for a first allocation of the fund, based on the actual needs of the various districts, as ascertained by close scrutiny and sifting of the local proposals, by such advice as the Board had been able to obtain from all available sources, and by conference with representatives of the various interests in each district, was submitted for approval early in November, 1914. In view, however, of difficulties felt by the Secretary for Scotland and the Treasury as to the expediency of setting up new local bodies for the special purpose of the administration of the fund, the Board agreed, after they had placed their views fully before the Secretary for Scotland, to undertake the direct administration of their grants, utilising the assistance of existing local authorities and other bodies in any way that might be found to be desirable. The decision to dispense with local administrative committees necessitated the revision of the schemes already submitted and the preparation of more detailed schemes dealing with the various aspects of the Board's work. Fresh proposals were placed before the Secretary for Scotland in April, 1915. The schemes, as finally approved on August 11th, 1915, are given in the report. The Board express their indebtedness to the Scotch Education Department for permitting Dr. CRUICKSHANK, their medical officer, to take part in the work of organising the Board's schemes, and also to the naval authorities for their kindness in arranging for the conveyance of nurses and medical stores to and from outlying islands where the ordinary means of communication are at at present in abeyance.

HOUSE OF COMMONS.

WEDNESDAY, MAY 24TH.

Medical Examinations in the Army.

Mr. ASHLEY asked the Under Secretary for War why it had been decided to increase the number of men medically unfit in the army by suspending the check of examination by regimental medical officers when men joined second-line units; how long must a man have been in training before the regimental medical officer was allowed to examine him except for infectious disease; and when a man broke down under training and was sent to hospital might medical examination then take place.—Mr. TENNANT answered: There is no limitation to the examination of soldiers by their regimental medical officers when it is necessary in the interests of the men's health.

Mr. ASHLEY: Can recruits on joining be examined by the medical officers of the units?—Mr. TENNANT: Yes, when it is considered necessary.

Medically Rejected Men.

Answering Mr. HOGGE, who put a question regarding men who had been medically rejected for the army, Mr. TENNANT said: The following classes of men will not be summoned for re-examination medically: (*a*) Those who are recorded in the military register as having been rejected at the primary military examination; (*b*) those who are recorded in the military register as having been rejected by a medical board; (*c*) those who now willingly present themselves for re-examination medically and are found by a medical board to be unfit for any service; (*d*) those concerning whom the recruiting officer is satisfied that there is no possible doubt. The aim of the Army Council is to eliminate only the improperly "rejected" men—that is, men holding certificates which have been granted to others than themselves and transferred to them, and men holding certificates saying they were unfit because of some transient and now long past disability.

British Prisoners of War in Germany.

Mr. TENNANT, replying to Major WHELER, stated that he found that the authorised scale of rations for British prisoners in Germany was in practice disregarded with serious consequences to the prisoners. He was advised that if it had not been for the parcels of food sent to the men from this country they would in many instances have starved. Therefore he did not think that there should be any relaxation of the efforts which had been made, and were being made, to send relief to the prisoners.

The Steel Helmets for the Troops.

Mr. TENNANT informed Mr. JOYNSON-HICKS that the French steel helmet was made in three sizes. The English steel helmet was also made in three sizes.

THURSDAY, MAY 25TH.

Internment of Invalid Prisoners in Switzerland.

Mr. MALCOLM asked the Secretary for Foreign Affairs when he expected to be able to fulfil his promise to publish and circulate the agreement under which invalid German and British prisoners of war would be sent to Switzerland and also the categories of diseases that would qualify prisoners for this transfer.—Sir EDWARD GREY replied: We hope to lay before Parliament the correspondence constituting the agreement very shortly.

Mr. MALCOLM also asked the right honourable gentleman whether the arrangements now arrived at between Great Britain and Germany for the internment in Switzerland of invalid prisoners of war were applicable alike to civilian and military prisoners.—Sir EDWARD GREY answered: The question of the inclusion of civilians in the arrangement arrived at between Great Britain and Germany for the internment in Switzerland of invalid prisoners of war is under consideration. We already have an agreement with Germany for the repatriation of invalid civilians.

Recruiting Medical Board at Ipswich.

Replying to Sir EDWARD BEAUCHAMP, Mr. TENNANT said: Arrangements have been made for a recruiting medical board to assemble at Ipswich and to commence work there on May 29th. It will sit daily on and after that date.

Incapacitated Prisoners of War in Turkey.

Captain CHARLES BATHURST asked the Under Secretary for War whether, in conformity with the practice adopted at Kut of exchanging sick and disabled prisoners belonging, respectively, to the British and Turkish armies, arrangements could be made for releasing by way of exchange disabled prisoners belonging to the Dorset Yeomanry and now in the hands of the Turks in Constantinople.—Mr. TENNANT answered: An agreement has been reached with the Turkish Government for the reciprocal repatriation of incapacitated prisoners of war under the same conditions as have been in operation for over a year between this country and Germany, and it is hoped that this may be put into effect shortly.

MONDAY, MAY 29TH.

Sanitary Accommodation in Dublin Prisons.

Mr. DEVLIN asked the Prime Minister whether he would lay upon the table of the House of Commons the reports of the medical officers regarding the sanitary accommodation provided for, and treatment of, prisoners awaiting trial in the various prisons and hospitals under the military authorities in Dublin.—Mr. HERBERT SAMUEL (Home Secretary) replied: The Prime Minister does not think it desirable to publish these reports, and his own experience of Ireland leads him to think that the sanitary accommodation of the prisoners is satisfactory.

Steel Helmets and Head Wounds.

Mr. ANNAN BRYCE asked the Under Secretary for War whether steel helmets had now been provided for all the troops on the Western front; and, if not, whether instructions would be given that when troops leave the trenches they shall leave the helmets for the incoming troops.—Mr. TENNANT answered: The supply of steel helmets has very nearly reached the number asked for up to the present, and it is believed that sufficient has been issued for the needs of all British troops within the zone of shell fire in France. As regards the latter part of the question, I think we may very safely leave the issue of such instructions to the general officer commanding in chief, in whom we all have the highest confidence, rather than attempt to dictate to him from this House on matters obviously within his purview.

Mr. ANNAN BRYCE also asked whether the use of steel helmets had diminished, and, if so, to what extent, the percentage of head wounds in British hospitals, which about six months ago were 15 per cent.—Mr. TENNANT said in reply: The percentage of head wounds to the total wounds in British hospitals in France from Feb. 12th, 1916, to May 15th, 1916, is 12·35.

TUESDAY, MAY 30TH.

The Medical Arrangements in Mesopotamia.

Colonel YATE asked the Secretary for India when the report on the breakdown in the medical arrangements in

Mesopotamia would be published; and whether the report would say who were the medical officers or other authorities in India responsible for the shortage of medical supplies.—Mr. CHAMBERLAIN replied: The Commission has not concluded its inquiry, and I am unable to give any date for the submission of the report. The terms of reference require the Commission to ascertain and assign the responsibility of individual officers for any inadequacy or failure of relief or shortage of personnel, equipment, vehicles, or stores.

Watering London Streets.

Sir STEPHEN COLLINS asked the President of the Local Government Board whether his attention had been called to the condition of many of the streets of London owing to the resolve of the various local authorities to discontinue the watering of the streets; whether he was aware that this neglect of a sanitary regulation was a peril to the health of the community, especially during the summer months, when sometimes dense clouds of impure matter were blown about and inhaled by pedestrians and wafted into open windows; and would he take the necessary steps to impress upon local authorities the importance of finding some means to carry out the duty of watering and purifying the public thoroughfares.—Mr. HAYES FISHER (on behalf of Mr. LONG) answered: My right honourable friend has made some inquiry into this matter, but has not learnt that any metropolitan borough council has discontinued street watering. In some cases street watering has been reduced from reasons of economy, and in more cases still from the difficulty in getting labour. My right honourable friend has already made a statement of his opinion on the policy of reducing street watering.

WEDNESDAY, MAY 31ST.

Petrol for Medical Men.

Replying to Sir THOMAS ESMONDE, Mr. PRETYMAN (Parliamentary Secretary to the Board of Trade) wrote: The needs of medical practitioners are being borne in mind by the committee appointed by the Board of Trade for the purpose of considering the supply and distribution of petrol, and it is hoped that steps towards meeting the requirements of medical men generally as regards petrol may shortly be possible.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BARCLAY, J. B., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Lydbrook District of the county of Gloucester.

ESTERMAN, T., M.B., Ch.B. St. And., House Surgeon at Leicester Royal Infirmary.

FORSYTH, R. A., M.D. Glasg., Medical Officer to the Munitions Tribunal for the Bradford District, which includes Bradford, Skipton, Shipley, Otley, and Keighley.

HEDDEN, R., L.R.C.P. Lond., M.R.C.S., Certifying Surgeon under the Factory and Workshop Acts for the Honiton District of the county of Devon.

HOLLAND, EARDLEY, M.D. Lond., F.R.C.S. Eng., Assistant Obstetric Physician to the London Hospital.

PORTER, AGNES ELLEN, M.D., D.P.H. Edin., Assistant Medical Officer to Govan Combination Hospital, Merryflatts.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

ALL SAINTS' HOSPITAL FOR GENITO-URINARY DISEASES, Victoria, London, S.W.—Non-resident House Surgeon, chiefly for afternoon work. Salary £100 per annum.

BELFAST MUNICIPAL SANATORIUM, Whiteabbey.—Temporary Assistant Resident Medical Officer for six months. Salary £5 5s. a week, with board, &c.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL.—House Surgeon for six months. Salary £150 per annum and extras, with board, &c.

BRADFORD, CITY OF.—Two Temporary Female Medical Officers. Salary 8 guineas per week.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, &c.

CHELSEA HOSPITAL FOR WOMEN Fulham-road, S.W.—House Surgeon, unmarried. Salary £80 per annum.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Second House Surgeon. Salary £150 per annum, with board, &c.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon. Salary £160 to £200 per annum, with board, &c.

DEWSBURY COUNTY BOROUGH.—Female Medical Practitioner. Salary £300 per annum, &c.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary as arranged, with board, &c.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £120 per annum, with board, &c.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—House Physician for six months. Salary at rate of £150 per annum, with board, &c.

GRAVESEND HOSPITAL.—Female House Surgeon. Salary at rate of £200 per annum, with board, &c.

HASTINGS, EAST SUSSEX HOSPITAL.—House Surgeon. Salary £150 per annum, with board, &c.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton. Assistant Resident Medical Officer. Salary £100 per annum, with board, &c.

HUDDERSFIELD ROYAL INFIRMARY.—Senior House Surgeon and Assistant House Surgeon. Salaries £150 and £100 per annum, with board, &c

KING'S COLLEGE HOSPITAL, Denmark Hill, S.E.—Assistant Obstetric and Gynæcological Surgeon.

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL.—Two Resident Medical Officers. Salary £250 and £150 per annum, with board, &c.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Assistant Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with board, &c.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Surgeon for Diseases of Women.

MIDDLESBROUGH, NORTH ORMESBY HOSPITAL.—Assistant House Surgeon. Salary £150 per annum, with board, &c.; or Senior Student, £100 per annum.

MUNITION FACTORIES.—Medical Women required.

NEW HOSPITAL FOR WOMEN, Euston-road, N.W.—Female Senior Clinical Assistant to Out-patient Department; also as Anæsthetist. Salary £10 10s. per annum. Also Clinical Assistants, Wednesday and Saturday afternoon.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £250 per annum, with board, &c.

PRESTON ROYAL INFIRMARY.—Resident Medical and Surgical Officer. Salary as arranged.

READING, ROYAL BERKSHIRE HOSPITAL.—House Physician for six months. Salary £250 per annum, with board, &c.

SHEFFIELD CITY HOSPITAL (INFECTIOUS DISEASES).—Assistant Medical Officer. Salary £225 per annum, with board, &c.

SHEFFIELD ROYAL INFIRMARY.—House Physician. Salary £120 per annum, with board, &c.

SUNDERLAND, COUNTY BOROUGH.—Temporary Tuberculosis Medical Officer. Salary £500 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Faringdon, Berks; and at Tregaron, Cardigan.

Births, Marriages, and Deaths.

BIRTHS.

BRIDE.—On May 23rd, at Beechwood, Eccles, the wife of Lieutenant T. Milnes Bride, R.A.M.C., of a daughter.

GOOD.—On May 23rd, at Dobbs, High Bickington, N. Devon, the wife of Arnold S. Good, M.R.C.S., L.R.C.P., of a son.

HAYDEN.—On May 25th, at Wymering-mansions, W., the wife of Captain A. F. Hayden, M.B., F.R.C.S., I.M.S. (retired), of a son.

HODDER.—On May 26th, at Sandon-road, Stafford, the wife of Lieutenant-Colonel A. E. Hodder, R.A.M.C. (T.), of a daughter.

O'CONNOR.—On May 29th, at Alexandra-mansions, Chelsea, to Captain F. W. O'Connor, R.A.M.C. (temporary) and Zella O'Connor, a daughter.

MARRIAGES.

BOLT—RINGLAND.—On May 23rd, at St. Anne's Church, Lewes, Captain Richard Frank Bolt, R.A.M.C. (T.C.), to Effie Lyndall, younger daughter of the late W. R. Ringland, of Belfast, and Mrs. Ringland, of Lewes, Sussex.

HEY—BROWN.—On May 23rd, at the Wesleyan Chapel, Darcy Lever, Bolton, Wilson H. Hey, F.R.C.S. Eng., Captain, R.A.M.C., to Elsie Brown, M.B., Ch.B.

HILL—LANGRIDGE.—On May 23rd, at Newmarket, Rowland Hill, M.D., M.R.C.P. Lond., Temporary Surgeon, R.N., to Gertrude, daughter of the late Arthur Langridge, Leytonstone.

DEATHS.

ALEXANDER.—On May 26th, at Poole-road, Bournemouth West, William Alexander, M.D., in his 54th year.

GOODHART.—On May 28th, at Portland-place, W., Sir James Frederic Goodhart, Bart., M.D., F.R.C.P., aged 70 years.

KIMBELL.—On May 28th, at a nursing home in London, Lieutenant Harry John Sullings Kimbell, R.A.M.C.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

The following magazines, journals, &c., have been received:—Albany Medical Annals, Pediatrics, Journal of the Missouri State Medical Association, Tropical Diseases Bulletin, Monthly Bulletin of the Office International d'Hygiène Publique, Psychoanalytic Review, Bulletin of the Johns Hopkins Hospital, American Journal of Medical Sciences, American Journal of Surgery, American Journal of Roentgenology, St. Mary's Hospital Gazette, St. Thomas's Hospital Gazette, American Medicine.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL NOTES ON HISTORICAL MANUSCRIPTS.

FOLLOWING is the final instalment of these historical extracts. The first two were published in our issues of May 20th and 27th.

£100 for a Cure.—Hugh Bwylye to Sir Robert Cecil, 1593, Oct.—The charge which I have taken in hand for the cure of Mistress Franncys Cecill that she should go well and perfect of herself; now, thanks be to God, she is well and out of her instruments. My bargain was, when I took her in hand, to receive for the curing of her £100. I desire you therefore that I may be satisfied.—Endorsed: "1593, Oct. For £100 for curing the Lady Fr. Cecil."

A "Dislocated" Foot.—Lord Cobham to Sir Robert Cecil, 1599-1600.—On Sunday last my foot was put in joint, which being so long out, and the party which set it thought skilful, yet old and weak, that it was very near a whole hour before he could put in the bone. Judge what pain I endured; since the splinter which is of iron to keep the bone in must not be altered for 14 days, and is so hard tied about my foot that the pain I now endure is very great, besides the cold weather which increases it. They assure me for my comfort that there is no blemish to my leg.

Suspected Witchery.—Jo. Stileman to Sir Robert Cecil, 1600, Sept. 9.—Mr. Amyce is a little amended, and some hope of him. Upon the examination of a notable witch, which he had committed to the gaol at Hertford, for her revenge did inflict her witchery upon him in such a manner that he was almost consumed to the bone. His doctors could not tell what to make of it, the manner of it was so strange unto them. In the end he said he thought he was bewitched by that lewd woman he had before committed. When I heard of it I sent presently to a woman that dwelt 12 miles from Waltham, which I had heard of her skill in those matters. She sent away presently to him with some things that he should take that night before he went to bed. He presently on the receipt found an alteration in himself, and that day at dinner he did eat more meat than he had done all the time of his sickness.—From your Honour's house at Theobaldes, 9 Sept., 1600.

A Young Nobleman's Strange Illness and Death.—Thomas Bilson, Bishop of Winchester, to Sir Robert Cecil, from Waltham, 1601-2, Feb. 24.—I am heartily sorry that my endeavour for the young Lord Burgh taketh no better success. He complained of a crick in his neck on Thursday fortnight, and thereupon kept his chamber, but without any apparent fever. I sent for physicians, who doubted the new disease in him, and thought it best to expect some declination of the heat which troubled him at times. On Thursday night last he went to bed in reasonable plight and slept more heavily than he was wont. I sent presently for as more learned physicians as Hampshire did yield, and after some pause they doubted he was falling into a kind of lethargy. This next Thursday is the seventh day since this heaviness oppressed him. How this disease should grow so strangely I cannot conjecture. I have only noted that he desired to feed much on fat meats, and have had many small combats with him to bring him from that diet, so that often he hath risen hungry from the table because I would not suffer him to feed on so oily and unctuous meats as he affected. His nimbleness of body made me least suspect a lethargy of all diseases, and his sullenness when displeased made us nothing to doubt that event which afterwards showed itself. The danger is greater if this collection of flux (?) and oily matter be fastened to the receptacles of the brain. If the matter be more tractable we conceive hope it may decline. If not, I can but rest pierced at heart for the loss of so noble an imp.

From the Same to the Same, 1601-2, March 1.—The sorrowful event of the young Lord Burgh's sickness could not choose but come to your ears afore this. The physician whom his mother sent was here when he died, and the lady herself within 14 miles. I stayed, therefore, till the corpse were viewed by physicians and surgeons and laid in cere-clothes that it might abide your directions for burial. In opening it they found the vital parts very sound and fair, but the left side of the lung somewhat black and perished, with a flux from his head, which was the cause of his often cough. The outward tunicles of the head they found clear and free from any corrupted phlegm, only in the inward cells of the brain they found four or five spoonfuls of water, and in the cell of the commonsense, which lieth before, the signs of the corruption which brake from him at the time of his death. The physic used to him in the time of his sickness I would not suffer to be dangerous or desperate, but such as was warranted by their best books. On the 7th day his head began to burn and shoot, whereupon one of the physicians here thought good to lay a rose-cake with a little *oxyrhodanon* to his head. That night he slept well, and the physician asked leave to depart till Sunday, and prayed me against that day to have other physicians of Hampshire here to consider the child's case in common with him. That Friday the child rose and eat somewhat of a roasted warden and a spoonful of broth, which he kept not long, but gave it up again. The Saturday he continued desirous to sleep, but because many children about us sick of this new disease did sleep three or four days and yet recovered, so we mistrusted nothing. When Dr. Hilton, physician of Winchester, came, he thought good first to have his body cleansed with a suppository (for we doubted he would not receive a clyster without danger) and then to keep him awake and provoke him to bleed at the nose. After dinner on Monday they began by all gentle and safe means to provoke him to sneeze and bleed at nose and hawk at mouth. They gat him to sneeze often and strongly but could not effect aught else, though his brotha and jellies were made to this end. The Tuesday they thought good with "beazoer" to bring him into a gentle sweat, which they did for an hour. Wednesday they consulted whether they should let blood or no, his pulse being good, but while they were discussing the child fell into a swoon and lost the use of his right eye, the lid shutting and never opening again. This put them from all opinion of taking blood, but only to try whether by vapouring they could provoke any matter to come forward. In that case he lay till Thursday night that Dr. Poo came from my Lady. He put up the powder of castor with a "nasale" and spirit of "secke" with a syringe into the nose and palate, at which the child exceedingly struggled, but without result. The physicians in my absence protested that this course would thoroughly sift him and send him one way or other, which they had no commission to do, save that he was a man trusted and sent by my Lady. Friday, towards 11, the child began to push out at mouth and nose a white matter and blood, and at the third or fourth plunge, being held forward, gave up the ghost. There remaineth the disposing of his body, which is in such case as it will stay these eight or ten months.—From my house at Waltham, 1st March, 1601.

Queen Elizabeth's Health.—Sir Robert Cecil to Mr. Nicholson, March 9, 1602-3.—I would not have you ignorant of those things which are like enough by bruit to pass into Scotland concerning matter of the nature whereof I now must write. First, it is true that till within these 10 or 12 days I never beheld other show of sickness in the Queen than such as is proper to age. Now her Majesty is free from any peril, but, because all flesh is subject to mortality, I must confess to you that she hath been so ill disposed as I am fearful lest the continuance of such accidents should bring her Majesty to future weakness and danger of that which I hope mine eyes shall never see. Although she hath good appetite, and neither cough nor fever, yet she is troubled with a heat in her breasts and dryness in her mouth and tongue, which keeps her from sleep, greatly to her disquiet. This is all, whatsoever you hear otherwise. She never kept her bed, but was, within these three days, in the garden.

Sir Robert Cecil to Mr. Secretary Herbert, 1602, March 9.—It is very true that her Majesty hath of late for 8 or 9 days been much deprived of sleep, which you know was ever wont to moisten her body, and whenever she lacked it she was ever apt to be impatient. This continuance for 9 or 10 days decays her appetite somewhat and drieth her body much, wherein, though she be free from sickness in stomach or head, and in the day catcheth sleep, yet I cannot but affirm unto you that if this should continue many months it promiseth no other than a falling into some great weakness or consumption which would hardly be recovered in old age; other peril I assure you there is not, and therefore, though I write the worst to you, yet I pray you suppress all other vain bruits the best you can.

Fleeing from the Plague at Amsterdam.—The Council to Lord Cobham, Lord-Lieutenant of Kent and Lord Warden of the Cinque Ports, 1602, July 25.—They understand that the plague reigns very greatly in Amsterdam, and that many of the inhabitants are retiring themselves into this realm, and some already come with purpose to disperse themselves in the port towns and in London. As the toleration of this access cannot but breed great peril Cobham is directed to have diligent watch kept in his Lord Wardenry and Lieutenancy, to prevent their landing during the time of the infection there. If any be already come into the towns they must be made to retire themselves into some quarters abroad in the fields the better to air themselves, and remain until they have cleared themselves by the trial of 40 days.

The Physicians of Padua.—Lord Buckhurst to Sir Robert Cecil, 1602, Aug. 20.—Now I must desire you humbly on my behalf to move her Majesty in a suit which I hope she will think reasonable, just, and charitable, whereof I beg leave to use some little preface to the matter. There hath been beyond seas for recovery of his health, by her Majesty's license, at Pont Amouson in Germany, one of my sons these three years. Her Majesty will remember him by the token that of all the children I had he was the finest and comeliest boy in nature, with such a rare curled head as her Majesty pleased to take a very special liking of him, but such was his misfortune as in a very great sickness he fell into a lethargy, from which time he hath fallen into a distraction of his senses. As for his cure by practice of physic and otherwise in England and abroad, he hath cost me above £2000, but now, having been these two years in Germany, where I was put in hope some good effect should have followed, I have about a month past received advertisement that after all my cost and so long a time consumed he is rather worse than better, and so no hope of any good to come from that place. Wherefore now I am resolved to send him to Padoa, where I will commit him to a council of physicians there, being assured that if by the skill and knowledge of physic he be to be cured that place above all the world doth yield the most rare and excellent physicians to perform it. The time for his travel to Padoa is now betwixt this and Michaelmas, and for that my son Thomas Sacvill, who is so much devoted to the wars of Hungary, hearing now of such preparations by the Turk against next summer, doth again desire to put himself into that service, as also for that by reason of a fall which he had from his horse in the camp at his last being there he hath had a long pain, which is now much lessened but not fully cured, and is put in great assurance that by the baths at Padoa the same will be recovered; therefore he is willing at my desire to pass to that place of Germany where his brother is, and so to pass to the Emperor's Court and there to remain this winter, from whence he will from time to time advertise me of such occurrences as there are to be had. ..... I beseech you to move her Majesty for her license of travel, for he must bring his brother from Pont Amouson to Padoa by Michaelmas. [In a letter dated Nov. 2, 1602, Lord Buckhurst informs Sir Robert Cecil of the arrival of the two brothers at Padoa.]

Foul Practice.—Lord Zouche to Sir Robert Cecil.—The cause of my writing is the pity of the bearer hereof, one John Aston, who is found a lunatic out of the Court of Wards by his wife's procurement, being once sick and in that sickness raving; which woman, having no children by him and finding that by his will he had not left her so much as she desired, took that occasion to procure a commission whereby to draw to herself all his goods, since which time he has been so kept as it would have made a sound man lunatic. He got away by stealth to this place, whom we would not believe till we had sent our letters to Mr. Davis of this Council, commended for a wise and honest gentleman, a copy of whose reply is enclosed, whereupon we took some further examination of the matter. But the man's want of money and friends; his dissolute life in loving drink and women, have many times procured as evil speeches as from a lunatic, which hath given them great colours to their foul device; but if you will enquire into the matter, you will find it a foul practice.—Ludlow, 5 Dec., 1602.

Lapis Malacensis.—A Memorandum, dated 1602.—Lapis Malacensis, or the stone of Malacca, so named because it is brought from Pam, a province of Malacca in India. It is found in the gall of an *Histrix*, or porcupine, and is there esteemed a most singular remedy against all

poisons. Doctor Garcia ab Horto, after he had remained 34 years in India, writ a learned book of all the simples and drugs of India, wherein he reporteth that in all his time there were but two found, whereof one was bestowed upon the King of Portugal's Viceroy of India as a most rare and precious present. This was of colour a pale purple, smooth and glib, bitter of taste, and in consistence like unto a piece of dried cake soap, and unctuous under the finger. Doctor Dimas Bosque, born at Valencia in Spain, and then the Viceroy's physician in India, gave common water, because no cordial water was at hand, wherein the stone had been steeped until the water became very bitter, unto two men which unawares had drunk poison, whereby they were both delivered from danger of the poison. In India, therefore, it is preferred far before the bezoar stone or unicorn's horn.—Lancelot Browne.

RECENTLY a girl travelling along the Strand on the top of a motor omnibus was burned to death through the lower part of her dress catching fire. According to the evidence given at the inquest, a Canadian soldier and a member of the Royal Flying Corps made a plucky effort to extinguish the flames as soon as they could unbutton their tunics and throw them round the deceased, and the conductor did his best to assist with the omnibus aprons and a chemical extinguisher. The material of the dress, however, which was described as "voile," was so inflammable that the flames enveloped the deceased immediately. The top of an omnibus is evidently an awkward place for such an accident, as the first step to be taken on such an occasion, that of throwing the victim flat, would be difficult to accomplish and she might also be difficult to get near effectively. The origin of the fire could not be ascertained, but there can be little doubt in the circumstances that this poor girl's death was caused by the abominable carelessness of a smoker in throwing down a lighted match or possibly, but less probably, the end of a cigarette or cigar.

"*Income Tax.*"—It has been the general custom in the past to allow a medical man to deduct two-thirds of the rent and taxes of his dwelling house and appurtenances, if partly used for professional purposes, when making his return for income-tax. Assuming that our correspondent has only the necessary premises to carry on his practice with professional propriety, and does not, maintain a large establishment by his private income, he should press for the full two thirds allowance with the assessor, and appeal to the Commissioners if necessary. It must be remembered, however, that the amount of the deduction is left to the discretion of the Commissioners to decide after due consideration of the particular circumstances, and that there is no *legal* deduction of two-thirds as suggested by our correspondent.

J. H. S. (*Athens, Ga.*).—The two units of the American Red Cross (E. and F.) detailed for service in Great Britain were recalled on Oct. 1st, 1915. All other units have also been recalled, including that at La Panne, Belgium, although individual members of the American Red Cross are still serving. Red Cross supplies are still being sent to the various countries and a supply depôt has recently been established in Egypt. The American Women's War Hospital at Paignton, South Devon, remains in full swing under the care of Dr. Penhallow and Dr. Daniel. We do not know the *locale* of an American ambulance corps in Europe, but the hospital known as the American Ambulance in Paris is well known.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, June 8th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—Cuthbert Lockyer, H. Russell Andrews): at 8 P.M.

Specimens:

Mr. J. D. Malcolm: Strangulation of Fibromyomatous Uterus caused by Torsion of the Corpus Uteri on the Cervix.

Dr. F. J. McCann: (1) Case of Pregnancy in a Large Fibromyomatous Uterus; (2) Soft Fibroma of the Paravaginal Connective Tissue.

Short Communications:

Dr. H. Russell Andrews: (1) Three Cases of Hæmatoma of Abdominal Wall; (2) Case of Primary Abdominal Pregnancy.

Paper:

Dr. John Phillips: Acute Hepatic Toxæmias complicating Pregnancy and Labour.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., Annual General Meeting. Paper:—Prof. J. W. Nicholson: Homogeneity of Visible Radiation. Exhibition of X Ray and Electrotherapeutic Apparatus. Demonstrations and Short Descriptions of New Apparatus will be given by the exhibitors.

BRITISH OTO-LARYNGOLOGICAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—5 P.M., Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie). 4.30 P.M., Special Demonstration:—Dr. G. G. Macdonald: Aids in the Diagnosis of Disease by Clinico-Pathological Methods.

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

MONDAY.—5 P.M., General Meeting.

FRIDAY.—5.30 P.M., Dr. E. Clarke: Eyesight and the War.

CHADWICK PUBLIC LECTURES, Town Hall, Ilford, E.

Course of Three Lectures on the Prevention of Disease and Frostbite in the Army.

FRIDAY.—8 P.M., Lecture I.:—Professor S. Delépine: Process o Disinfection (illustrated by diagrams and lantern slides).

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, May 31st, 1916.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
May 25	29·570	S.E.	0·05	121	66	55	56	58	Raining
,, 26	29·890	W.	...	122	65	49	50	55	Fine
,, 27	29·860	S.W.	...	98	65	49	50	56	Fine
,, 28	29·890	S.W.	...	129	70	51	53	58	Fine
,, 29	29·970	W.	...	129	73	52	52	60	Fine
,, 30	30·004	N.W.	0·05	93	64	55	53	57	Cloudy
,, 31	30·136	S.W.	...	115	70	51	53	56	Fine

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